The Milroy Lectures

ON

THE ETIOLOGY OF TYPHOID FEVER AND ITS PREVENTION.

Delivered at the Royal College of Physicians of London on Feb. 20th, 25th, and 27th, 1902,

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LECTURE I.

Delivered on Feb. 20th, 1902.

MR. PRESIDENT AND GENTLEMEN,—When the Council of the College paid me the unusual compliment of requesting me to deliver the Milroy Lectures this year I felt that although my time was more than fully occupied I could not refuse the honour so graciously offered me and I therefore accepted the duty without hesitation. Had I, however, known that I should have to go through a serious illness towards the end of last year—an illness from which I have not yet fully recovered—I should certainly have shrunk from the ordeal. I have chosen the subject of typhoid fever partly because it has not been treated before in these lectures (although Dr. P. Horton-Smith delivered his Goulstonian Lectures on the Typhoid Bacillus in 1890), and partly because I have had an unusual experience of that disease from many points of view. I studied it under William Jenner—of whose part in elucidating it I shall have something to say further on—35 years ago. Soon after that I went through a severe outbreak of it while prosecuting my post-graduate studies as Radcliffe Travelling Fellow of the University of Oxford at Lyons—an epidemic which filled all the medical wards and half-filled all the surgical wards in the hospitals of that city with cases of typhoid fever of every variety. Since then much of my time has been occupied in investigating both large and small outbreaks of the disease, in studying the conditions under which it spreads and the means of preventing it, whether in the form of widespread outbreaks or of cases in households. During these investigations I have, of course, been exposed to the infection of the disease on very numerous occasions, of which I may especially allude to one where I traced a severe outbreak in a small country town to the contaminated water of the well at the hotel in which I was staying. I attribute my immunity during all these numerous exposures to the fact that I well remember suffering when a boy from what was called "brain fever." The first medical paper I wrote was entitled "On the Alleged Spontaneous Origin of the Poison of Enteric Fever." It was read before the Epidemiological Society of London in March, 1874, and will be alluded to at length further on.

I have used the name "typhoid" in the title of these lectures in preference to "enteric" fever, as it is the oldest name now in use—the name which Jenner used and of which Louis says, "it is almost free from objection," and also a better name than "enteric," as it expresses the fact that it is a disease which resembles typhus fever—a fact which cannot be gainsaid, as it was confused with it by all the astutest physicians up to near the middle of the last century. "Typhoid" is also a better name than "enteric" for a general disease, for we do not call other fevers by names merely denoting the organs in which their most specific lesions occur. As Dr. Charles Murchison says: "It would not be desirable to have any name derived from the abdominal lesion, tending, as this would do, to revive in the minds of many the exploded doctrines of Broussais"—viz., that the fever was caused by the intestinal inflammation. I may also add that the name of the organism now identified with the disease is "bacillus typhosus" and not bacillus entericus or enteritidis.

The historical part of the subject has been so fully treated by Dr. Murchison, who has given us a summary of the history of typhoid fever from the time of Hippocrates onwards, that it is quite unnecessary for me to go into the early part of it in any detail. I think it desirable, however, that I should go at some length into the question of the knowledge of this disease at the beginning of the last century and of the development of such knowledge since, by giving an account in some detail, and as far as possible in the words of the authors themselves, of the most important works on the subject since the early part of the last century—works which have really advanced our knowledge, written by great masters, the medical giants of their day.

In the first place I wish to introduce to your notice a hitherto unknown author, a copy of whose work I have found in the library of the Royal Medical and Chirurgical Society. I refer to him as an unknown author because his work is not referred to by Dr. Murchison, although he cites a great number of authors both on typhus and typhoid fever, nor, so far as I can find, is it referred to by any other writer. There is no copy of this work in the library of our College or in that of the Medical Society of London, or even in that of the British Museum. The copy that I found in the library of the Royal Medical and Chirurgical Society has been there for many years, but has been read by no one, as its leaves had not been separated when I found it. It is written in Latin and is entitled, "Specimen Practicum de Remediis Efficacissimis in Morbis Contagiosis ac Pestilentialibus adnexa Commentatione de Contagiis et Febribus Typhodeis." It was written by Christopher Mayr, Doctor of Medicine, "olim Variorum Nosocomiorum Medico Secundario, ac Quondam S.S. Caes. Reg. Apost. Maj. Status Militaris Medico Supremo, et Magni Nosocomii Militaris Vindobonensis Medico Primario. Collegii Medici Vindobonensis Sodali." and was published in Vienna in the year 1806. In this treatise fevers are divided into eight classes or genera (see Table I.).

TABLE I.

Conspectus Febrium.—Febres Principes Elementares seu Cardinales.

I.

Synochus imputris, seu Febris Continua non putris.
1. Febris inflammatoria.
2. Febris biliosa.
3. Febris pituitosa.

II.

Synochus putris utplurimum Malignus, seu Febris continua putrida utplurimum maligna.
Typhus. Quinque species Typhorum.

III.

Febris intermittens.

IV.

Febres continuæ remittentes seu compositæ
et
Febris ardens seu καυσος.

V.

Febres epidemicæ intercurrentes.
Variolæ.
Morbilli.
Scarlatina.

VI.

Febris indeterminata, nova, incognita.

VII.

Febres Sporadicæ et Singulares.
Febris lactea.
Febris puerperalis.

VIII.

Febris lenta, hectica.
Phthysis pulmonalis.

The five species of typhus under Genus II. are shown in Table II., as follows:—

TABLE II.

Quinque Species Typhorum.

Primo. *Typhus verus pestilens contagiosus seu Pestis orientalis.*

Secundo. *Typhus verus gangraenosus, contagiosus, icterodes, pestilens,* vocatur etiam *Pestis occidentalis,* seu *Febris pestilens, contagiosa, epidemica flava americana.*

Tertio. *Typhus verus non contagiosus putrido-biliosus seu bilioso-putridus,* seu *Febris putrida sanguinea* seu *putrida saburralis.*

Quarto. *Typhus verus nervosus seu pituitosus non contagiosus,* seu febris nervosa, seu febris lenta nervosa anglorum, vel febris putrida pituitosa a pituita acri et putrescente ortus, *tarde decurrens.*

Quinto. *Typhus Spurius seu fictitius.*

By this most interesting classification of fevers we are able to understand exactly the view taken of them at the beginning of the last century, and from the accurate descriptions given of some of them in Mayr's book we are able also to understand how much was known about them and how far they were distinguished one from another. Each of these

eight divisions is considered by Mayr to be a genus and each of the sub-divisions a species—that is to say, a distinct disease and not a mere variety. This is clearly shown by the sub-divisions of Genus V.—viz., small-pox, measles, and scarlet fever—which are obviously distinct diseases. I may at once draw attention to the remarkable fact that he includes pulmonary phthisis among fevers as the only species of Genus VIII., entitled "Febris lenta, hectica." He does not, however, tell us whether he considers phthisis a *contagious* fever or not, but he probably did, as throughout the southern parts of Europe it has always been considered a contagious disease. His first genus is continued fever, of which he considers that there are two species. His second is typhus, of which he describes five species, which he styles "diversae species," as follows:—

"Primo. *Typhus verus pestilens contagiosus seu Pestis orientalis.*" By this he no doubt meant true contagious typhus fever, with which the oriental plague was associated and confused up to that time and later still, for he says further on in his treatise that to the genus called typhus belong "the fever of hospitals, prisons, camps, ships, and many others, as also especially the true Pestis orientalis." He therefore recognised that his first species of typhus was the fever of prisons and other crowded places.

"Secundo. *Typhus verus gangraenosus, contagiosus, icterodes, pestilens,* vocatur etiam *Pestis occidentalis,* seu *Febris pestilens, contagiosa, epidemica flava americana.*" Or true contagious yellow fever.

"Tertio. *Typhus verus non-contagiosus putrido-biliosus* seu *bilioso-putridus,* seu *Febris putrida sanguinea* STOLLII, seu *putrida saburralis* STOLLII qualem sordes putridae e systemate gastrico in sanguinem attractae generare solent. In *putrida sanguinea* vero vitium in systemate sanguineo primario natum; a colluvie bilis putridae in sanguine seu secundis viis abundantis nata, vel ex primis viis in secundas delata; vocatur quoque *Typhus mitior,* lentius decurrens, non contagiosus, vel *Febris putrida non contagiosa.*" A perfectly clear and unmistakeable definition of one of the varieties of typhoid fever, of which he further says, so that there cannot be the slightest doubt about the matter: "Haec Species *Typhi* potissimum cum inflammatoria febre aut topicis affectionibus complicata esse solet, cum aut sine exanthematibus; inde Peripneumoniae malignae, Hepatitides, Dysenteriae et Mesenteritides gravissimae etc. observantur."

"Quarto. *Typhus verus nervosus seu pituitosus non contagiosus,* seu febris nervosa, seu febris lenta nervosa anglorum, vel febris putrida pituitosa Stollii, a pituita acri et putrescente ortus, tarde decurrens." Another well-known variety of typhoid fever of which he remarks: "Haec Species *Typhi* cum inflammatoria et biliosa febre ac topicis affectionibus, cum aut sine exanthematibus permixta et complicata esse solet." And further adds the following shrewd observation which anyone who has had anything to do with the treating of cases of typhoid fever will agree with: "In nullo morborum genere tanta opus est patientia, exspectatione cunctationeque ad bene et feliciter medendum: est enim difficilis hujus morbi Diagnosis et Therapia." Typhoid fever is described as "nervous fever" by Gilchrist, Huxon, and Manningham; as "nerven fieber" by German writers; "fièvre nerveuse" by the French; and "low fever" or "brain fever" by many English writers.

"Quinto. *Typhus spurius seu fictitius.*" Apparently equivalent to the *embarras gastrique* of French authors. He says that it is often confused, as might be expected, with the *typhus verus* of the third or fourth species—i.e., with typhoid fever.

These five species of "typhus" Mayr considered to be distinct diseases, but his third, fourth, and probably fifth, were evidently our typhoid fever, in which he thus recognised either two or three diseases; and who shall say even now that he was wrong? It would not be in the least degree surprising if it were definitely proved that under the term "typhoid fever" we now include at any rate two quite distinct diseases. Mayr, therefore, clearly distinguished between typhus and typhoid fevers. He put them down as separate diseases belonging to the same genus, typhus being a contagious fever and typhoid, including the third, fourth, and fifth species of the genus, being non-contagious. It becomes now exceedingly interesting to ascertain what further differences he points out between the two diseases. He says under the heading, "*Diagnosis Primae et tertiae Speciei Typhi*": "The symptoms of the first and third species of typhus (that is to say, of typhus fever and typhoid fever) are in common and very similar except that in the first species of typhus more bad symptoms appear in the sick than in the third species of typhus, and that in the first species of typhus bubones, anthraces, vibices, are more often observed than in the third species of typhus, and that the first and second species of typhus (i.e., typhus and yellow fever) often prostrate even the most healthy men by contagion contracted, which does not happen in the third non-contagious species, but (in which) the prodromata precede a long time before the disease breaks out; and that in the first and second species of typhus on account of their contagious nature the mortality is far greater than in the third and fourth non-contagious species of typhus." Under the heading, "*Causae harum febrium,*" Mayr says: "Besides contagion, which affects different people in various ways, there is also a pestilential contagious *poison* which is transferred and communicated to others in the *first species of typhus* from the infection of one suffering in a similar way; as in the typhus of the first species, so also in the *non-contagious typhus* of the third species it supplies the cause, it deprives of all the force of life, it depraves the humours, it relaxes the system." He then gives a number of predisposing causes, among which are warm and moist air, the close atmosphere of ships, hospitals, vaults, camps, crowded cities, &c. Air contaminated with the effluvia of pools, of animals, and vegetables, especially of putrid things, &c. It will be noticed that he mentions overcrowding first and that he no doubt refers to as the cause of true typhus fever. He then goes on to putrid substances, but it is too much to conclude from this that he therefore understood that these were the causes of the third, fourth, and fifth species of his genus of typhus—that is to say, of typhoid fever. Further on in his book he refers again to contagion at some length in a chapter entitled *De Contagiis,* towards the end of which chapter he says: "It is, moreover, to be noted that certainly not all the typhode contagions are of so volatile a nature that they are always and absolutely spread abroad and volatilised in the atmosphere, and therefore (other things being equal) can act only in true epidemic fashion, but that many of them, and some of the most virulent and malignant, as long at least as a strong degree of heat does not act upon them, show a sufficiently fixed character and remain fixed for a longer or shorter time upon various other bodies which catch them—viz., upon different goods, especially those of wool and cotton, of silk, of leather, feathers, flax, or the hairy skins of animals, clothing, paper, wood, beds, walls, and buildings, and often after many months they break out from these hiding-places still in full force, they infect the atmosphere, and propagate disease and death far and wide."

I must now direct your attention to another remarkable treatise, the work of J. Val de Hildenbrand, Professor of Practical Medicine at the University of Vienna, which was published there in 1810, and a translation of which was published in Paris in 1811. In this treatise the author maintains that the word "typhus" has been improperly employed to designate a *genus* of disease, and that it ought to be used as the name of a particular *species.* He says that the true typhus has often been mistaken for another fever, just as certain other fevers have been mistaken for typhus. "But," he says, "in order to avoid all further dispute about the name of a disease of which the primitive meaning has been lost by an abuse of language, I declare that I treat in this work of the true *contagious typhus* alone, which develops in the human body its special poison by means of which it afterwards spreads, which is everywhere and always perfectly like itself, and of the same essential nature, because it proceeds from a poison *sui generis* and always the same, which disease in fine ought alone to bear the name of typhus because it possesses the special characters expressed by that word. Contagious typhus is an essential fever the course of which displays a constant uniformity. It is a fever of a *special species*—as small-pox, for example. It is contagious because by means of a special substance which develops during the disease it is transmitted and communicated to those who are predisposed to it. By reason of an eruption which is peculiar to it it belongs to the family of the exanthematic fevers, among which the contagious fevers ordinarily find their place. It has a course determined in measured periods and also different characters in its different periods, but with a constant symptom throughout the whole course of the disease, which is stupor with delirium or 'typhomania.'" And he goes on to distinguish it from the fevers known by the names of malignant, nervous, asthenic, putrid, and bilious—in fact,

from the fever which we now know under the denomination of typhoid. He then describes the varieties of contagious typhus under the names of pestilential or oriental typhus (the plague), perhaps also occidental typhus (the yellow fever of America) and ordinary typhus. Of the latter he says that it is peculiar to Europe and we must include under it, *but only as so many varieties*, the typhus of hospitals and lazarettes, of prisons, of camps, of vessels, and of besieged cities, showing clearly that by it he means what we understand as typhus fever and that he was quite aware of the circumstances under which it flourishes. In Section VI. of his work he discusses the causes and modes of development of the disease. He says that it is always produced by contagion and that one attack of it almost always destroys for a certain time, but rarely for the whole of life, the susceptibility to the disease. He says that the contagion is spread by means of clothes, woollen stuffs, furs, linen, dirty bedclothes, and even by beds of straw or of hay on which typhus patients have lain. He disputes the view that the air of marshes has anything to do with the disease, pointing out that it produces fevers of the intermittent type. For him overcrowding is the cause of typhus fever, although he gives all credit to previous observers in the following sentence: "Army doctors by exact researches have been the first to show us under what circumstances and how the air can become the cause of typhus. R. Minderer, D. Monro, J. Pringle, and others have specially pointed out the dangers which air produces when it is overcharged with human exhalations. *There is in truth the source of the contagious matter and of the contagion of typhus.* It is equally recognised and too much confirmed by terrible examples that the exhalations of healthy men crowded and pressed together in too small a space have also the most harmful influence upon health. In prisons, houses of correction, small rooms of vessels, and in all the establishments where many men otherwise healthy live together in too great a number the air offers the same danger." He also insists that the disease may be avoided by preventing overcrowding: "As the atmosphere of hospitals, or of any other establishment, deteriorated and overcharged with exhalations, especially with exhalations of sick persons, is the only originating cause of typhus, and as the best method for preserving against this terrible disease consists solely in diverting these causes and in insuring a pure and respirable air, every authority, as soon as it is convinced of the importance and utility of this object, should take care to have recourse to measures which are the most salutary and the most suitable to attain this end. Such is certainly the duty of Governments: they watch over the sick with so much solicitude, they go to so much expense for food, medicines, and commodities of all kinds, and why should they neglect to pay attention to that which is the most necessary to the sick, to the purity of the air as the indispensable element of life, and of which the bad qualities are so often dangerous?" The next sentences are so remarkable and so much in advance of the time that I am sure I shall be pardoned for quoting them also: "What is there beneficial to suffering humanity when in a hospital and in a military lazarette a considerable number of sick persons are found crowded together and infected one after the other by the foul air? Would it not be more suitable to place these sick persons in barns or in attics in the open air than to crowd them in rooms? One would avoid in that way many dangers and misfortunes. One is even sometimes prodigal in providing warmth for sick persons. Why should one not be so in ensuring pure and sufficient air? Air is more useful than warmth. Want of warmth can sometimes be replaced by diet or medicines; want of air can never be replaced, either by the best diet or by the most expensive remedies. Civil and military authorities ought never to lose sight of this important truth. It is the duty of all those who are called upon to work for the good of humanity to have their minds imbued with this idea in order to attain the desired object." It is thus quite evident that this author in the early years of the nineteenth century had a perfectly clear idea of what typhus fever was, of its causes, and of the way to prevent it. He says in the most positive manner that it is a distinct disease from the other continued fevers which we now know as varieties of typhoid.

The most important early work on typhoid fever, however, is that of M. Louis, the first edition of which appeared in 1829 under the title of "Researches on the Diseases Known under the Names of Gastro-enteritis, Putrid, Adynamic, Ataxic, or Typhoid Fever," &c. It was dedicated to M. Chomel, Professor of Clinical Medicine at the Paris School. In this first edition M. Louis describes, with the hand of a master, typhoid fever in the minutest manner. He maintains that the ulceration of the Peyer's patches is its characteristic lesion and he says: "*Except the alteration of the elliptic patches* all the lesions of the mucous membrane of the smaller intestine observed in cases of the typhoid affection existed in persons who had succumbed to very different acute diseases." And again: "The elliptic patches of the small intestine having only shown alterations in the subjects dying from the disease which is the principal object of these researches, this alteration having been constant, ordinarily very severe, always developed according to the same law, whether death has arrived after eight days of the disease or after a much more considerable length of time; and in some cases, so to speak, the only lesion; it must not only be considered as special to typhoid affections, but as forming their anatomical character just as tubercles form that of phthisis, whatever has been the cause which has excited their development." He also, even in this first edition, describes the "*taches roses lenticulaires*" (N.B.—He calls them thus, by other writers they are generally known as "*taches rosées*"), their distribution and successive crops. With regard to the causes he says: "While the causes of enteritis are often evident, those of the typhoid affection are unknown." And again: "The most profound obscurity then reigns over the causes of the affection we are considering." The second edition of the work was published in 1841 and was also dedicated to M. Chomel.[1] In the preface to this edition he refers to the confusion which previously existed as to the continued fevers and says triumphantly: "Now that the confusion has ceased it is recognised that the fevers of Pinel, apart from the plague, only form one and the same disease, of which the anatomical character consists not in an inflammation of the stomach and intestine but in a profound and special lesion of the elliptic patches of the small intestine. Those who up to this time had defended with the greatest energy the doctrine of the fevers have abandoned their point of view and have recognised for the most part, as M. Chomel has done, the exactitude of the facts which I have observed and that of the conclusions which I have deduced from them.[2] This change of opinion has taken place not only in France but everywhere where observant medical men have followed the movements of science; and among foreigners the American medical men have been the first to recognise the correctness of my researches." He then quotes a number of American medical men "who, having studied for the most part the typhoid affection at Paris, have afterwards many times observed it in their own country with the symptoms and anatomical characters which I have described." In this second edition the chief additions that he makes are as follows. In the first edition he had stated that the "*taches roses*" were found in other diseases. In this one he says: "Since the publication of this work I have in vain searched for the spots in question on a number of patients attacked with other acute affections than typhoid fever; and I presume that being less familiarised with the typhoid spots 10 years ago than I am now I must have confused small papulæ with the eruption in question, which explains the apparent contradiction which I have just pointed out." This is the confession of a great and truthful observer. Further on he complains that "the state of the viscera of individuals who have perished from the different epidemics of typhus has often been neglected; and in this case the most certain and easy means of assuring oneself of the identity or difference between typhus and the typhoid affection escapes us." He then quotes M. Gaultier de Claubry and authors of other writings and says that "after a fashion these descriptions, although assuredly very incomplete, seem nevertheless to show, as far as they go, that the comparative study of the symptoms indicates the identity of typhus and the typhoid affection." It will be noticed how very guarded this sentence is, but M. Louis was not content with that very guarded statement, for he goes on instantly to make the following astute remark: "One cannot be too much astonished, however, in admitting this identity that a formidable accident, the perforation of the small intestine,

[1] In this edition the title was somewhat altered, the name *typhoid* fever being given a prominent position before the other names of the disease.

[2] In a footnote he here acknowledges the recognition given him by Professor Forget in his treatise on Follicular Enteritis, which had just been published.

has not fixed the attention of those who have described epidemics of typhus." And only three pages further on he says: "From the present time it must be acknowledged that every acute affection which is not accompanied in its course with the special alteration of Peyer's patches is not a typhoid affection, although one does not find in the autopsy the signs of any other affection, and thus the typhus fever of the English is necessarily a very different disease from that with which we are engaged." And then speaking of the observations of Dr. Shattuck of Boston he adds: "That which reasoning forces us to admit direct observation has proved, and we must recognise henceforth that there exist in England, and in London in particular, two febrile affections hitherto confounded together, but really very distinct, which only resemble one another in a general manner, of which one only attacks young persons, is accompanied ordinarily from the outset with local symptoms in the abdomen, afterwards with an eruption of *taches roses lenticulaires;* whilst the local symptoms, the diarrhœa, the meteorism, are more or less completely absent in the other which is accompanied by an eruption very different from the first and also much more abundant, and attacks person of every age." He adds much to his chapter of causes and points out that in typhoid fever "passing the night in places situated low down and inhabited by too many persons cannot be one of the causes, as only the eighteenth part of the cases fulfil this condition." He actually gives one case, "Observation 54 bis," where the use of a putrid water in which a certain amount of chopped-up hay had been mixed was followed by a well-developed and fatal case of typhoid fever in which the ulcerations of the Peyer's patches were found after death. With regard to the question of contagion, which he did not touch in the first edition of his work, he comes positively to the conclusion that it is a contagious disease, and that the Paris physicians had denied this because in a great city it is difficult to trace the course of contagion. He quotes largely from the work of M. Gendron of Château-du-Loir on epidemics of small places to prove that the disease is transmitted directly and indirectly from person to person. He also quotes from the same author some remarkable instances proving the immunity conferred by an attack of the disease, and at the same time proving its contagious character. These are so interesting that I think them worth quoting, as follows:—

1. Three journalists contracted the disease at a certain house; two communicated it to their families; the third did not do so, he was looked after by his wife who had had the disease several years before.
2. A domestic servant of Contereau transmitted typhoid fever to his sister, the niece of his master and mistress, and these visited her without danger. They had had the typhoid affection four years before.
3. At Petit-Gênes a young man infected all who looked after him except his father and mother; these had both previously had dothinentérie; the husband 20 years and the wife two years before the epidemic which this very son started.
4. In 1829 the same disease was imported into a fresh family at Petit-Gênes and did not go beyond it, in spite of the visits of the inhabitants of the hamlet, which had already been once attacked.
5. At eight years apart two epidemics attacked Coëmont and the second spared all those whom the first had not spared.

He concludes, then, first that the disease observed in these country places by MM. Bretonneau, Leuret, and Gendron whether in the sporadic or epidemic state was unquestionably typhoid fever, because the characteristic anatomical lesion was commonly found among those who died from it and "it must be recognised therefore that the typhoid affection is contagious, at any rate in the departments." But he adds that others have since made similar observations in Paris. Thus, M. Putegnat "has reported that after a visit made to a person who returned from a village where typhoid fever prevailed a woman was attacked by this disease and a few days afterwards her husband and their six children were also attacked. A single person escaped—she was 82 years of age. M. Putegnat also reports other similar facts which leave no doubt as to the contagious character of the disease." And he finally concludes: "It seems to me henceforth impossible, after all that goes before, to deny the contagious character of the typhoid affection, even in Paris."

I will next draw your attention to the work of Professor A. E. Chomel entitled "Leçons de Clinique Médicale (Tome I., Fièvre Typhoïde)," published in 1834, but delivered before then. Dr. Chomel considered typhoid fever a separate and distinct disease from typhus fever and gave it the name of typhoid fever. In his introductory remarks he says that the fevers described by different authors, including himself, "under the name of grave continued fevers, under whatever form they show themselves, whether inflammatory, bilious, mucous, adynamic, ataxic, nervous, are only varieties of one of the same affection which has received different names (entero-mesenteric fever of MM. Petit and Serres, intestinal exanthema of M. Audral, *dothinentérie* or *dothinentérite* of M. Bretonneau, *iléo-diclidite* of M. Bally, follicular enteritis of many pathologists). We shall preferably call it by the name of *typhoid fever* or *disease*, because of the analogy which it offers in its symptoms with the typhus of camps." He goes on to add that the various fevers mentioned above have common characters which forbid them being considered as separate diseases "*and are especially bound together by a series of anatomical lesions which one does not meet with in any other disease.* The typhoid affection will therefore occupy in nosology a position of great importance because it almost takes the place by itself of a whole class of diseases." He then describes most minutely the symptoms and course of the disease, describing, among other things, the special eruption in the following words: "One sees appear ordinarily from the seventh to the ninth day that altogether peculiar eruption which is special to typhoid fever and consists in small *taches rosées*, disappearing by pressure, of from half a line to two lines in diameter, round in shape, without elevation or scarcely elevated above the skin, scattered over the abdomen, sometimes over the chest, more rarely over the thighs, the arms, and the forearms." Further on he points out that "the *taches rosées lentiaulaires* are easily distinguished from the petechiæ and from the bites of fleas, because in these latter there is extravasation of blood at the surface of the dermis, and that their colour, instead of lessening under the influence of pressure, becomes more pronounced by the discolouration of the skin which surrounds them. In the typhoid spots, on the contrary, the redness disappears altogether, as in erysipelas, where there is evidently congestion, and where, when the pressure ceases, one sees the redness reappear immediately." Further on, again, he points out that in a certain number of cases there is intestinal hæmorrhage and sometimes perforation, of which he says: "Perforation of the intestinal walls is the most grave of the accidents which can happen in the course of the typhoid affection, for it almost inevitably results in the death of the patient." He mentions that M. Louis reported that he had observed intestinal perforation eight times in 55 persons who had died from typhoid fever, a proportion of one in seven. In discussing the lesions produced during the course of the disease he says: "The anatomical lesions which constantly or almost constantly accompany the typhoid affection are situated in the follicles of the intestines and the mesenteric glands. These are the only lesions which one meets with in almost every case." He includes in the follicles of the intestines the isolated ones (Brunner's glands) and the agglomerated ones (Peyer's patches) and further on he describes minutely the ulceration of the follicles. Like all the other authors of the time he finds that "the causes of typhoid fever are involved in the greatest obscurity." With regard to the question of contagion he points out that "there is a great difference of opinion among medical men—the majority in France deny every kind of contagion in this disease. A few, however—perhaps 1 per cent.—think that typhoid fever ought to be classed among the contagious diseases." He then states the arguments of the non-contagionists, which he says were generally received and admitted without opposition until the time when M. Bretonneau in 1829 adopted the opposite opinion. He points out that the first reason why contagion has been denied to this malady "is that of all the persons who can surround a patient attacked with typhoid fever there are few who are susceptible of contracting the disease. One understands in effect that the father, the mother, the doctor, the nurses, many of the sick in hospitals, are immune to the contagion either because most of them have already passed the age at which the typhoid disease is most commonly developed, or because they have already been attacked by it, or, lastly, because they are among the number of those who are immune by constitution. Another reason is that in hospitals on account of the good ventilation such diseases even as small-pox are not readily transmitted from one patient to another." He also points out that the negative proofs on which the anti-contagionists rely are entirely from observations made in Paris. "But it is not in cities as large as Paris that one can study contagious diseases from the point of view of their transmissibility, because of the difficulty, or even of the impossibility, in most of the cases to trace there the course of the contagion. ..... It is

not, therefore, by negative proofs collected in a city like Paris that one can support an opinion unfavourable to contagion." Typhoid fever, according to him, only affects the same person once. "This circumstance is an important fact, for there are only a few diseases which attack but once the same person, and among these diseases there is not one which is not obviously contagious; typhoid fever would then be the only exception to this law if it were not contagious like the other diseases with which it shares this important character. Lastly, another point which is in favour of contagion is the analogy which exists between the typhoid affection and the typhus of camps, of which no one disputes the contagious character." He then discusses the resemblances and differences between these two diseases and formulates his conclusions as follows: "1. The opinion adopted by most French medical men that the typhoid affection is not contagious cannot be admitted as demonstrated. 2. If this disease is contagious it is only so to a feeble degree and with the concurrence of circumstances as yet ill-defined. 3. If furtner observations show in typhus fever anatomical lesions resembling those which one meets with in the typhoid disease the identity of the two affections would be placed beyond doubt and the question of contagion would be solved." Thus, after his minute and accurate account of typhoid fever and his evident conviction that it is a separate disease, he is obliged from his ignorance of typhus to suggest that it may be possible that after all they may be the same disease.

I am relieved from the necessity of describing the works of various other authors before 1835, as in that year two most important memoirs were awarded prizes by the Royal Academy of Medicine of Paris and were published in the memoirs of that academy. These memoirs were answers to the question, "faire connaitre les analogies et les différences qui existent entre le typhus et la fièvre typhoide dans l'état actuel de la science." The first was by M. Gaultier de Claubry. In this paper he, like everyone else up to that time, considers the oriental plague to be a variety of typhus fever. He states that MM. Petit and Serres gave to a typhoid outbreak at the Hôtel Dieu in 1812 the name of "fièvre entéro-mésentérique" and that they, like MM. Louis and Chomel, consider it a separate disease. Even in the page of introduction to his memoir M. Gaultier de Claubry shows the bent of his mind, for, after describing typhoid fever as "that grave continued fever, so-called by MM. Louis, Chomel, Bouilland, &c., which has as constant anatomical characters the alteration of the elliptical patches and scattered follicles of the small intestine and that of the lymphatic ganglia of the mesentery," he goes on to say: "We are about to set forth a complete parallel between the two affections (typhus and typhoid fevers) in order to bring out the analogies and the differences, *if there are any*." And so we find that quite early in his memoir at the end of the second chapter he actually concludes with (under the head of "Symptomatology") "*Typhoid and typhus fever present not only analogy but the most perfect resemblance*," and this apparently merely because they both present different forms with different degrees of intensity. Later he tells us that in the two fevers the lenticular eruption is the same but that in typhus it is more abundant and petechial, but that sometimes it is the same in typhoid, and in this latter statement he is quite correct, as the eruption in typhoid may occasionally simulate that of typhus fever so completely as to be indistinguishable from it. I remember well an instance in University College Hospital of a young woman, a patient in one of Sir William Jenner's wards, who contracted *typhoid* fever while in the hospital, and developed the *typhus* rash so completely that one of the best clinical physicians of the time brought his class to see what the typhus eruption was like. The girl was sent to the London Fever Hospital as a case of typhus fever and she died there with ulceration of the Peyer's patches. There was no doubt, therefore, that the girl had typhoid fever. It was known from whom she contracted it and it was quite certain that she could not have contracted typhus fever while in the hospital.

Of the intestinal lesions, as of the symptoms, M. Gaultier de Claubry concludes that because in typhus fever alterations have sometimes been found in the mucous membrane of the intestines "there is not only a greater or lesser analogy but an *incontestable identity* of organic changes in the two fevers," and he makes this statement in spite of the fact that a little further on he praises the work of M. Lombard of Geneva who says that throughout the six years during which he has studied the subject with the greatest attention he has never seen a single case of typhoid fever in which the intestinal canal did not present after death the lesion of the elliptical patches of the smaller intestine, but that he saw with the greatest surprise that the cases (of typhus fever) at Glasgow and Dublin had no such lesion or affection of the mesenteric glands, and that this was the general experience of the medical men there. As to causes, M. Gaultier de Claubry shows that all authors agree that overcrowding is the cause of typhus fever, but he points out that Louis showed that this could not be the cause of typhoid fever, as only one-eighteenth part of the subjects of it were found to be under that condition, and that most of the cases were among the newcomers to Paris. It is a pity that M. Gaultier de Claubry did not pay more attention to this point. If he had he would hardly have concluded his memoir with the sentence: "Typhus fever and typhoid fever are one and the same disease to which it would be convenient to give the name of typhode fever in order to avoid the expression typhoid, which only indicates an analogy of form and the word typhus which frightens people."

The other memoir was by M. Montault. It, like the former one, is a very exhaustive memoir, but, unlike it, commences without any *parti-pris*, as he gives no hint of any preconceived notions; indeed, he says in his introduction that he has "specially shown himself jealous of giving proof of a mind free from preconceived ideas and occupied by an ardent love of truth and guided by observation and reasoning after the well-known precepts of Hippocrates, Baglivi, and Bacon." In the first two parts of his memoir he gives what he calls the history of the two diseases under which he includes causes, symptoms, lesions, and treatment. In the third part he discusses the analogies and differences between them. Persons of all ages are exposed to attacks of typhus, while it is certainly not so for the typhoid fevers (he always speaks of typhoid fevers, not "fever"). Typhoid fever often occurs without overcrowding. Contagion, generally admitted for typhus, is not proved for typhoid fever, which is also more often sporadic than epidemic. He here quotes Hildenbrand as distinguishing completely typhus from the typhoid fevers, because of contagion which is peculiar to typhus. He then points out the differences of the symptoms of the two diseases and says that it is only in typhoid fever that death is sometimes caused by peritonitis following perforation of the intestines, and with regard to the ulceration in the intestines he says that one cannot in typhus fever assign different degrees or various forms to the lesion of Peyer's patches "because it is now probable that this lesion is absent in typhus fever." He also notices the differences in the times of the eruptions: "In the typhoid fevers the special eruption appears from the eighth to the twelfth day; in typhus from the fourth to the seventh day. This eruption which is constant in typhus does not constantly exist in the typhoid fevers. It is more general and more abundant (that is, the spots are more numerous) in typhus. It appears in the nervous period in the typhoid fevers; it disappears on the contrary in the nervous period of typhus. According to M. Rochoux it forms a morbilliform eruption in typhus and consists of slight elevations in typhoid fever; according to M. Chomel this eruption takes place on the abdomen and chest in the latter disease, whilst in typhus the face and the limbs are especially affected by it; lastly, petechiæ are rare in typhoid fever but very common in typhus." At the end of his memoir he gives a summary of the analogies of the diseases in the form of a table, but although he thus clearly points out the differences between these diseases he does not commit himself to the statement that they are two different diseases. He contents himself by stating that Hildenbrand, F. de Sauvages, and P. Frank regarded them as different diseases; that M. Bouillard recognised a "want of identity" at a certain period of the diseases; and that M. Brettoneau had expressed no definite opinion on the matter. It is a great pity that the modesty of M. Montault was so great as to prevent his stating definitely the opinion to which his admirable researches undoubtedly led him. Had he done so it would, perhaps, have prevented the erroneous views of M. Gaultier de Claubry from taking possession of the medical profession in France.

A report by M. Louis, M. Bricheteau, M. Bouillaud, M. Double, M. Bally, and M. Andral, on a paper by M. de Larroque on "The Treatment of Typhoid Fever by Purgatives," published in the *Bulletin de l'Académie de Médecine* for 1836, shows how vague was then the knowledge of typhoid fever even among those who knew

it best, for they suggest that "the pyrexia, called in France 'typhoid fever,' *may be* nothing else than a gastro-intestinal inflammation," and M. Bouillaud defines it as follows: "Typhoid fever, or adynamic fever, or entero-mesenteric fever, or dothinentérite, or iléo-diclidite, &c., consists in the inflammation of the small intestine and its follicles plus a *typhoid element*, the nature of which is not agreed on." On the other hand, during the discussion M. Rochoux says positively, "Typhus and typhoid fever are two essentially distinct diseases, as M. Petit has proved, and as I have stated in a treatise myself."

At about the same time that Dr. Lombard of Geneva was making his observations which led him to the conclusion that there were "two distinct and separate fevers in Great Britain, one of them identical with contagious typhus, the other a sporadic disease identical with the typhoid fever or *dothienenteritis* of the French, Gerhard and Pennock of Philadelphia were arriving at the same conclusion from observations of an epidemic of typhus which prevailed in that city in the spring and summer of 1836. Both had previously studied the enteric fever in Paris and were familiar with it in their own country. They at once recognised the difference of the new disease, and after a time they were never deceived in their diagnosis." Their observations were published by Gerhard in February and August, 1837. Gerhard maintained that the typhus of Philadelphia was identical with British typhus, and with the gaol, camp, ship, petechial, or spotted fever, and that it was eminently contagious, while, on the other hand, typhoid fever was rarely communicated. He showed that the lesions of Peyer's patches and of the mesenteric glands, invariably present in the latter, were never found in the former, and remarked that English observers erred in regarding the intestinal disease as a mere complication of typhus. He insisted on the marked difference between the petechial eruption of typhus and the rose-coloured spots of typhoid fever, and he showed that a peculiar train of symptoms very different from those of typhus was associated with the intestinal affection, and that the distinctive characters of the two diseases were such as in practice could not allow them to be confounded. To Gerhard and Pennock certainly belongs the credit of first clearly establishing the most important points of distinction between the two diseases. M. Valleix of Paris, in a review published in January and February, 1839, thus alluded to Gerhard's observations: "M. Gerhard établit d'abord un fait bien important, c'est qu'il peut exister, et qu'il existe en effet, concurremment dans le même pays, deux maladies, qu'on peut parfaitement diagnostiquer, et dans lesquelles on peut prédire pendant la vie du malade, les lésions qui seront trouvées après la mort; ce sont la fièvre typhoïde et le typhus proprement dit."

After this several authorities, especially Dr. Staboroh, Dr. Shuttuck of Boston, M. Valleix, and M. Rochoux, published memoirs pointing out the differences between the two fevers. Of the last mentioned Dr. Murchison says: "He insisted that nothing could be more unlike than the eruptions of the two fevers and that while typhus was highly contagious and generally believed to result from overcrowding the contagious character of dothienenteritis was doubtful and it was independent of overcrowding" (Rochoux, 1840).

On Feb. 6th, 1840, Dr. H. C. Barlow read a very important paper on "The Distinction between Typhus Fever and Dothienentérie" before the Parisian Medical Society, an abstract of which will be found in THE LANCET of Feb. 29th of that year. He insisted that these two fevers were not only different in their lesions but also that "the *fièvre typhoïde* of France is an endemic disease; it is endemic in those localities, as in Paris, where it principally prevails and where the influence of contagion is extremely doubtful and is by many positively denied. The typhus fever of Great Britain and Ireland on the contrary is a highly contagious disease." Further on he says: "I would suggest that two diseases so different in their modes of origin, however nearly in the course of their symptoms they may come to resemble each other cannot be essentially identical. Dothienentérie chiefly attacks those who have only been a short time resident in Paris or in a large city; typhus fever observes no such distinction of persons; the former rarely occurs above the age of 40 years or below that of 10, the latter on the contrary very frequently does. Dothienentérie is at its maximum in autumn and at its minimum in winter. ..... In typhus no such connexion is observed to exist and that disease is often at its greatest height in winter when the former is comparatively rare." He also points out that in typhoid fever "diarrhœa is one of the earliest and most constant symptoms. It usually sets in at the beginning of the disease and continues to its close. It does not appear to be essential, as three fatal cases are mentioned by M. Louis in which it did not occur, neither is there any obvious relation between its amount and the degree of organic lesion which exists, yet its occurrence is almost invariable. In typhus an opposite state prevails and diarrhœa is comparatively rare." After mentioning other differences he describes the eruptions of the two diseases with the greatest minuteness and accuracy. "At about the eighth or ninth day the typhoid eruption, consisting of lenticular rose-coloured spots, *taches rosées*, appears on the abdomen, back, and chest; it is not an abundant eruption and not always present. The spots are about a line in diameter, regular in form, slightly elevated, and disappear on pressure, but return again. They come out in succession, four days being the average duration of each." After describing the sudamina he adds, "Petechiæ have been chiefly noticed in particular epidemics. They vary in diameter from one to several lines and neither project nor disappear on pressure. Vibices occasionally occur." On the other hand, "in the typhus fever of Great Britain and Ireland the eruption is chiefly petechial, often mixed with vibices, appears earlier, on the fourth or fifth day, sometimes before, and is commonly profuse, the amount of eruption bearing a certain ratio to the intensity and duration of the disease. The duration of dothienentérie may be stated on an average of from 20 to 30 days. ..... The average duration of typhus in 43 fatal cases mentioned by Dr. Reid was 12½ days ..... so that typhus appears to run its course much more rapidly than dothienentérie." He sums up the differences between the two fevers as follows: "A difference in the manner of origin, a difference in the seasons of occurrence, and a difference in the modes of attack; a difference in the series of symptoms, a difference in the external appearance, and a difference in the duration of the diseases; a difference in the ages at which they occur, a difference in the sexes in which they principally prevail, and a difference in the mortality which they respectively occasion. While the great and crowning difference of all is the existence of a particular anatomical lesion in one, and the absence of any obvious anatomical lesion in the other. Surely two diseases which differ in all these particulars cannot be identical." No wonder that Dr. Murchison says: "This paper has received less attention from subsequent writers than it deserves." I will go farther than that and will say that although previous writers had foreshadowed the differences between the two diseases, and although some of those writers whom I have mentioned had gone so far as to declare that the two diseases were different from one another, Dr. Barlow was the first man to give a detailed and complete account of the differences between the two diseases and to establish once and for ever that they are entirely distinct from one another. The only important fact in connexion with the two diseases that he does not point out is the difference in their *causes*.

In the same year—viz., on April 16th and 23rd, 1840—Dr. A. P. Stewart read a paper, also before the Parisian Medical Society, entitled, "Some Considerations on the Nature and Pathology of Typhus and Typhoid Fever applied to the Solution of the Question of Identity or Non-identity of the Two Diseases." This paper is an admirable summary of the state of knowledge on the subject at the time and contains an excellent description of the two diseases and their differences. He alludes to the cause of typhoid fever, of which he says: "With regard to the producing cause of typhoid fever all is vague and uncertain, ... but what chiefly concerns us to know is whether the conditions we have seen to be so powerful in the production of typhus are the same, or anything like the same, in regard to typhoid fever. Exactly on this point Louis remarks: 'No more can the dwelling in places, low and inhabited during night by too great a number of individuals, figure among the causes in question, one-eighteenth only of the patients being in that condition,' and he concludes from a comparison of all the assigned causes with the facts ascertained by himself in these remarkable words: 'The deepest darkness, then, prevails regarding the causes of the affection under consideration.' Chomel likewise uses the same words in beginning his third article: 'The causes of typhoid fever are wrapped in the greatest obscurity.'" As to Dr. Stewart himself he merely says without hazarding any decided conclusion on a

point so keenly debated: "I would simply direct attention to the differences as regards the probable origin and propagation of the two diseases which the foregoing facts appear to establish and also to the interesting question whether, if typhoid fever really depends on and is propagated by a specific poison, that poison is or is not generated under the same circumstances as the infection of typhus." So that as far as the cause is concerned Dr. Stewart does not advance us at all, neither does he venture to say that typhoid and typhus fevers are distinct diseases, for he sums up the matter as follows: "On a review, then, of all that has been advanced, it would appear that typhus and typhoid fever present important differences, as regards their probable origin, their approximate causes, their course, many of their symptoms, their diseased appearances, and the treatment applied to each. Are they, then, identical, or are they not? I feel that it would be presumptuous in me to hazard a direct reply; nor do I demand an answer in the affirmative merely on the faith of what I have stated. All I can ask or wish for is careful, extensive, and minute inquiry without prepossession or love of system, and a satisfactory solution must soon be arrived at." So that he does not really lead us as far as Dr. Barlow had already done.

In the year 1841 a work entitled "Traité de l'Entérite Folliculeuse (Fièvre Typhoide)," by C. P. Forget, Professor of Clinical Medicine at the University of Strasburg, was published in Paris, consisting, in fact, of lectures previously given by that physician to his students, to whom it is dedicated. (The preface is dated November, 1840.) In these lectures he speaks of the *essential distinctions* between typhus and typhoid fevers, saying that they have only been determined within recent times. He gives Hildenbrand the credit of being the author who had done more than any other to point out the specific nature of typhus fever, but he does not agree that the other fevers from which Hildenbrand distinguishes it are necessarily non-contagious. He then discusses the views of M. Gaultier de Claubry and other authors who maintain that typhus and typhoid fevers were the same diseases. M. Forget excuses himself for quoting so many authorities by saying that he has not had the sad privilege of observing epidemic typhus. He is evidently much impressed with the views of M. Gaultier de Claubry and admits that it is possible that many of the grave febrile affections referred to may be identical, but he defines his own object as follows: "That which I profess to show is that our *sporadic* typhus *nostras*, *typhoid fever*—in a word, the grave continued fevers of our country—are, and certainly always have been, associated with follicular enteritis. *Let this be well understood. We do not profess to talk of that which we have not seen* (i.e., of typhus fever); it is follicular enteritis, commonly called typhoid fever, which is going to occupy us exclusively." He is perfectly clear about the fact that the disease has this special lesion and he gives the following definition: "Follicular enteritis is defined by itself—that is to say, that the lesion which names it is its fundamental character. Follicular enteritis is the inflammation of the intestinal follicles, as pneumonia is the inflammation of the lung." And again: "Follicular enteritis is a material fact, as pneumonia, hepiditis, cancer, variola, &c. Why, then, should we refuse to make a disease of it? ..... What we have to do here is to establish the reality of follicular enteritis as an evident morbid fact; it is to recognise its right to a place in the catalogue of diseases.[3] For him, among several alterations in the intestinal canal those of Peyer's patches are the most characteristic, and he describes them in great detail, referring to the observations of Bretonneau, Louis, Chomel, and Montault on perforation of the intestine in this disease. Although he mentions the *taches rosées* he evidently does not consider them as especially characteristic of the disease any more than the sudamina or the petechiæ which he also mentions. As to the cause of the disease, while he considers that it may be produced by foul air and decomposing foods, he says that the causes "sont très variables et n'offrent rien de spécifique." It is evident, however, that he attached some importance to foods as a possible means of conveying the disease, for he says: "Is it not, indeed, singular that some would deny that food, for instance, has the power of directly producing follicular enteritis, when they attribute to it without difficulty gastritis, colitis, and villous enteritis itself?" After quoting a number of other authors, some of whom maintain that the disease is contagious and others that it is not, he gives his own opinion as follows: "As for me, a pupil of the Paris School, I have denied the contagion until after my removal to the country, as indisputable facts showed me that typhoid fever can affect persons who stay near sick persons. Whether it is by the inoculation of a specific virus (contagion) or by inspiration of air vitiated in any other manner (infection) I do not know; but this is positive, that the disease *is communicated* in certain circumstances somewhat rare and still undetermined." This sentence, I think, expresses the view that is held most generally now. However, he in fine concludes "that there is nothing invariable and essential in the causes of follicular enteritis; nothing essential and invariable except follicular enteritis itself."

Such was the position when Dr. William Jenner (afterwards Sir William Jenner, Bart., G.C.B., one of the ablest Presidents the College ever had) undertook the investigation of the question. Having been resident medical officer of the London Fever Hospital he had had an excellent opportunity, of which he made the best use, of making observations on cases of both typhus and typhoid fevers, and in 1849 his paper "On the Identity or Non-identity of Typhoid and Typhus Fevers" appeared in the *Monthly Journal* and was published in a separate form by John Churchill in 1850. In the introduction to this paper he points out "that with few exceptions British physicians have laboured to prove that typhoid and typhus fevers are identical. The results obtained by this analysis justify the assertion that they are essentially distinct diseases." He commences by stating the differences between scarlet fever and small-pox and in a masterly manner proceeds in his paper to show that similar differences are observed between typhoid fever and typhus fever. "We assert that small-pox and scarlet fever are different diseases for the five following reasons: 1st. In the vast majority of cases the general symptoms differ. 2nd. The eruptions, the diagnostic characters if present, are never identical. 3rd. The anatomical character of the one is never seen in the other. 4th. Both being contagious diseases, the one, by no combination of the individual peculiarities, atmospheric variations, epidemic constitutions, or hygienic conditions, can give rise to the other. 5th. The epidemic constitution favourable to the origin, spread, or peculiarity in form or severity of either has no influence over the other excepting that which its exercises over disease in general." With regard to the third of these he explains as follows: "By the anatomical character of a disease I intend to signify that lesion or those lesions of structure which are the invariable concomitants of a disease if it has continued for a given time, which time must be determined by a separate series of observations for every distinct affection. The anatomical character is not, be it remarked—and this is of immense importance—necessarily the cause of the disease, for it may be merely a symptom; but then, if the disease be not cut short by death it is an invariable symptom." Jenner saw that the crucial question was the determination of the facts with regard to the intestinal lesions. He remarks: "London alone of all the cities of Europe, from the fact of fever, with and without intestinal disease, being almost constantly present within its bounds, afforded a field for observation capable of setting the vexed question at rest. In Edinburgh, writes Dr. Christison, the intestinal lesion is seen often enough only to prevent physicians being ignorant of its characters. In Dublin it appears to be equally unfrequent, while on the continent fever without lesion of the agminated glands is so rare that many eminent practitioners have doubted the existence of such an affection. The London Fever Hospital, by collecting within its walls cases of continued fever from all parts of the great metropolis, offered peculiar facilities for its study." During two years he made notes of nearly 1000 cases of acute disease, of which 66 were fatal cases of continued fever which were examined by him after death. This was necessary, as it was essential that the presence or absence of the intestinal lesion should be demonstrated. Of the 66 cases he found that in 23 the disease of Peyer's patches existed. These were cases of typhoid fever. In the remaining 43 the agminated glands, so far as the unassisted eye could determine, were in a healthy condition and these were cases of typhus fever. He then describes with the greatest minuteness the difference in the symptoms of the two diseases and concludes by combating two assertions that had been put forward "to account for the differences in symptoms which existed in continued fever with and without entero-mesenteric disease." 1. That

[3] He thus gives the disease the name of what he regards as its important and characteristic lesion, calling it "follicular enteritis"—even a worse name for it than "enteric fever."

typhoid fever is merely typhus fever complicated with lesions of a particular organ and it is therefore to be expected that certain symptoms referable to, and dependent on, that lesion will be present and so far modify the symptoms of the disease. He maintains, on the contrary, that the general symptoms of the two diseases in the cases he examined differed widely, "such differences having no apparent connexion with the local affection but being probably, like it, dependent on some common cause acting on the whole system simultaneously. Thus the remarkable differences in the kind—no small amount—of the rash of the two diseases, and the tendency to local inflammations, to erysipelas, and to ulceration, observed in the cases of typhoid fever here analysed, cannot with any show of reason be considered to have been dependent on the disease of Peyer's patches—i.e., in the same way as the abdominal signs undoubtedly were. The fact also that the duration of typhoid fever, and even of fatal cases of it, is considerably greater than is that of typhus fever also struck me very forcibly. The short comparative duration of the cases of typhus fever here considered is another remarkable point of difference, totally inexplicable by the hypothesis that typhoid fever is typhus fever with intestinal ulceration. Had the cases eventually recovered it might have been said that the intestinal lesion prolonged the disease in the cases of typhoid fever, but that all the fatal cases of fever, with a local lesion of so severe a nature as that recorded to have been present in the cases of typhoid fever, should have had a much longer course than all those other fatal cases of fever in which no organic change of structure could be detected after death appears to me inexplicable on the supposition that the former is simply the latter disease, with this serious lesion superadded. Let me repeat, by this hypothesis, we are asked to imagine that death is retarded in fever by extensive ulceration of the small intestines and enlargement, softening, and even suppuration of the mesenteric glands. Surely it behoves the supporters of such a statement to bring forward cogent proofs of the identity of the specific cause of the two affections ere they ask us to admit its truth." After pointing out other important differences he adds: "Thus tried by facts—i.e., by recorded symptoms and lesions—the assertion that typhoid fever is merely typhus fever with abdominal complication is completely refuted." 2. But another mode of explaining the differences which exist between the two diseases has been given—i.e., that the differences observed depend on variations in the epidemic constitution. These cases afford a complete answer to this assertion, for a majority of the cases here analysed of both diseases were observed during the same epidemic. "The cases of typhoid fever—which disease is rarely absent for a fortnight from the wards of the hospital—preserved their symptoms unchanged and presented the same lesions whatever the epidemic constitution that prevailed; the same is true of typhus fever. Cases of the latter disease are also rarely absent from the wards of the same institution. It is there common to see the patients occupying beds side by side and presenting respectively the well-marked characters of either disease. If, I repeat, the two affections were really the same disease, then the same epidemic constitution ought to have impressed on both the same general features, implanted in both the same local lesions, and given to both the same tendency to cadaveric change, and this allowing for all the modifying influence which the accidental presence of the abdominal lesions in the one and the absence from the other group might have occasioned. The analysis of every symptom and every lesion shows that the two affections were not thus assimilated by the prevalence of any particular epidemic constitution. But if this epidemic constitution, by any stretch of the imagination, could be supposed to change from week to week, to cause the case attacked to-day to have typhus fever, the individual who takes the disease to-morrow to have typhoid fever, still it could not account for the fact, as well established as any fact in medicine, that typhoid fever rarely, if ever, affects persons more than 50 years of age, while age exerts little influence in determining the occurrence of typhus fever. Thus, then, the assertion that typhoid fever is merely typhus fever modified by the prevailing epidemic constitution is as irreconcilable with facts as that the former disease is simply the latter with abdominal complication." He then repeats the distinctions between small-pox and scarlet fever and concludes: "If, then, the above are the grounds—and after mature deliberation I am able to assign no others—for the separation of small-pox from scarlet fever, I think it is indisputably proved that typhoid fever and typhus fever are equally distinct diseases—not mere varieties of each other, but specially distinct—specific distinction being shown in typhoid and typhus fevers, as in small-pox and scarlet fever, by the difference of their symptoms, course, duration, lesions, and *cause*."

Thus Jenner, as all who knew him knew, always had the courage of his opinions. He was not afraid, as some others before him had been, to state definitely, succinctly, and without circumlocution, the conclusions to which his investigations had led him, even though those conclusions were at variance, as he himself says, with the great majority of medical opinion at the time both in this country and on the continent. But this was not all. On Dec. 11th, 1849, Dr. William Jenner read a paper before the Royal Medical and Chirurgical Society entitled "On the Identity or Non-Identity of the Specific Cause of Typhoid, Typhus, and Relapsing Fever." For this purpose he analysed the cases admitted into the London Fever Hospital during the years 1847, 1848, and 1849, and the summary of his results is as follows: "In 1848 one-fourth of the cases admitted into the hospital had typhoid fever; while from 34 foci of typhus fever, yielding 101 cases, there was brought to the hospital once only a case of typhus fever and a case of typhoid fever from the same house; and during the same time among five localities affording nine cases of typhoid fever, one locality only ..... yielding a case of typhoid and one of typhus fever. That in 1849, although 18 foci of typhus fever yielded 51 cases and four foci of typhoid fever afforded 10 cases, not a single example of the two diseases being received into the hospital from one house occurred." And he concludes: "The facts contained in this paper appear to me to prove incontestably, so far as induction can prove the point, that the specific causes of typhus and typhoid fevers are absolutely different from each other. ..... I have throughout this paper expressed myself as if the specific cause respectively of typhoid fever, typhus fever, and relapsing fever was an influence emanating from the bodies of those affected with either disease. With respect to the contagious nature of typhus fever, I know no one who entertains a doubt. If typhoid fever be contagious it is infinitely less so than typhus fever. My experience leads me to regard it as contagious. Those who believe typhoid fever to be non-contagious while they admit the contagious nature of typhus fever cannot for a moment doubt the difference in the specific causes of the diseases. It would not, it ought to be observed, have weakened the force of the facts adduced if I had regarded these diseases as non-contagious, because the question here considered is not how the individuals respectively got the disease, but if the same cause, whether contagion or any other, can produce typhoid fever, typhus fever, and relapsing fever."[4]

Thus Dr. Jenner carries us, at any rate, one step farther. He not only asserts, as Dr. Barlow and others had done, that the two are distinct diseases, and proves it up to the hilt, but he also proves that they must have essentially different causes.

Dr. Murchison read a paper before the Royal Medical and Chirurgical Society on April 27th, 1858, entitled, "Contributions to the Etiology of Continued Fever, or an Investigation of Various Causes which Influence the Prevalence and Mortality of its Different Forms." In this admirable paper, describing the results of his observations at the London Fever Hospital, he establishes the following important points (besides many others) which I will give in his own words:—

1. Typhus and relapsing fever are quite independent of the season of the year, whereas typhoid fever is almost invariably most prevalent during autumn at the time that diarrhœa is most common, and it has been observed to be specially prevalent in seasons remarkable for their high temperature.

2. Sex has no influence over the prevalence of continued fever nor over that of any of its forms.

3. Typhoid fever is pre-eminently a disease of childhood and adolescence, at which periods of life we know that there is a marked proneness to enteric affections. Less than one-seventh of the cases of typhoid are above 30 years of age. Typhus and relapsing fever exhibit no predilection for youth—of typhus one-half, and of relapsing fever one-third, of the cases are above 30.

4. Typhus and relapsing fever appertain exclusively to poverty and destitution, and seldom or never occur among the wealthy except from direct contagion. Typhoid fever attacks both poor and rich without distinction.

5. In large cities typhus and relapsing fever are for the most part limited to those localities remarkable for the overcrowding of their

[4] Transactions of the Royal Medical and Chirurgical Society vol. xxxiii., 1850.

inhabitants; and in country districts they are seldom or never met with except as the result of direct importation. Typhoid, on the other hand, occurs alike in the centre and suburbs of cities; in the crowded houses of the poor and in the spacious mansions of the great; and also in isolated houses and hamlets in the country, without any traceable sources of contagion.

6. When fever breaks out in a house or locality it seldom or never happens that some of the cases are typhus and others typhoid, but typhus and relapsing fever occur not unfrequently together.

7. Overcrowding with deficient ventilation and destitution appear to be the essential causes of typhus and relapsing fever and to be capable of generating them *de novo*, [?][5] while there is no evidence that they have any such influence over the production of typhoid fever.

8. There are many circumstances which tend to the belief that the emanations of decaying organic matter or organic impurities in drinking water, or both of these causes combined, are capable of generating [?] typhoid fever, but there is no authenticated evidence whatever to prove that such causes can give rise to typhus or relapsing fever.

9. Typhus is eminently contagious. Typhoid fever is also contagious, but in a more limited degree and possibly through a different medium. Again, typhus has in no instance been proved to communicate typhoid, nor typhoid to communicate typhus. An attack of either confers an immunity from a future attack of itself, but not of the other.

10. In all of the fevers there is not much difference in the mortality of the two sexes.

11. The mortality from typhus is greater among the very poor than among those in better circumstances. Typhoid fever appears to be equally mortal in all classes.

12. Typhus and relapsing fever are strongly assimilated in the causes which give rise to them, if they be not mutually convertible diseases. Typhoid fever on the contrary appears to be a perfectly distinct affection dependent upon totally different causes.

It is very interesting to note that in the course of this paper Dr. Murchison observed "that out of 10 *cow-keepers* admitted with fever in nine the fever was typhoid," and also that he "ascertained that in several instances patients entered as 'labourers' had been *employed in the drains;* in every such case the fever was typhoid." Of the patients admitted to the fever hospital "most of those who may have been supposed to have occupied the best conditions have been admitted with typhoid fever. ..... Thus the proportion of family servants admitted with typhoid has been three times that of typhus, of policemen six times, and of shopmen more than double. On the other hand ..... among 'paupers' typhus and relapsing fever taken together have been eight times as frequent as typhoid, and of 64 'vagrants' admitted with fever in not a single instance was this typhoid." Again: "Typhus fever among the rich, except as the result of contagion, is excessively rare, while cases of typhoid originating without any traceable contagion are far from uncommon. ..... I think, then, it may be concluded that typhus and relapsing fever are for the most part confined to the poor, but that typhoid fever makes no distinctions between one class and another." He shows that typhus fever prevails in overcrowded localities, whereas "a careful study of a great number of recorded outbreaks of fever in country towns and villages throughout England has convinced me that these outbreaks are almost invariably typhoid. It is also a fact worthy of notice that several instances have come under my own observation of typhoid fever making its appearance in an isolated house in the country, in a family living in easy circumstances without any traceable source of contagion, of its attacking several individuals, and then disappearing without spreading beyond that house. Dr. Bartlett also makes similar observations as the results of his experience in America. On the other hand, I am acquainted with no instance of typhus or relapsing fever originating in this way." He agrees with Dr. Jenner that typhus fever and typhoid fever originate from *different foci of infection.* "In no single instance during the 10 years have I met with a case of typhus and typhoid admitted from the same family, or even from the same house except (and the exceptions have been only one or two) after the lapse of many months or even years." He then gives a number of cases in which typhoid fever was associated with "putrid emanations from decomposing organic matter in drains, cesspools, churchyards, &c., and organic impurities in drinking-water." These cases (actually dating from 1747 onwards) included the celebrated outbreak in the Westminster School and Abbey Cloisters in 1848, known as the Westminster fever, which attacked 36 persons, all of the better class, with three fatal cases. A very bad smell had been complained of in the houses where these cases occurred during two or three days of very hot weather and "it was found that the disease followed very exactly in its course the line of a foul and neglected sewer in which fæcal matter had been accumulating for years without any exit and which communicated by direct openings with the drains of all the houses in which it occurred." He also relates that towards the end of 1852 an outbreak of typhoid fever took place at Croydon, which was investigated by a committee of the Epidemiological Society consisting of Dr. A. P. Stewart, Dr. Jenner, and Dr. Sankey, and which was found to be caused by fæcal emanations of various kinds and also by contamination of the drinking-water. And at the end of this evidence he concludes "that typhoid fever is often, if not always, generated by the putrid emanations from drains and other sources, or by decomposing organic matter in drinking-water." While, then, Dr. Jenner proved that typhus fever and typhoid fever must proceed from different causes, Dr. Murchison took us a step further and showed in the most masterly manner that typhoid fever was not produced under circumstances of overcrowding as it was well known that typhus fever was, but that although spread partly by direct contagion it was chiefly spread by means of foul emanations from sewers and drains and the pollution of drinking-water with foul organic matters.

I may here insert the opinion of the great French clinician, Trousseau, who says: "Dothienentérie is a general disease, acute, febrile, very akin to the eruptive fevers of which we have spoken and with which it offers more than one striking analogy." He also says: "La contagion de la dothienentérie est incontestable."

In 1862 Dr. Murchison issued his "Treatise on the Continued Fevers of Great Britain," and in 1873 the second edition of it appeared. In this work he gives an excellent historical account of typhoid fever which he calls enteric or pythogenic fever, the last name being suggested by him as an expression of what he believed to be the origin of the disease. This is shown in his opening lines wherein he defines it as "an endemic disease generated and propagated by certain forms of decomposing organic matter." This treatise is so well known that I need not summarise it. I will merely give his own summary of its etiology, which is as follows:—

1. Enteric fever is either an endemic disease or its epidemics are circumscribed. 2. It is most prevalent in autumn and after hot weather. 3. It is independent of overcrowding and attacks rich and poor indiscriminately. 4. It may be generated independently of a previous case by fermentation of fæcal and perhaps other forms of organic matter. 5. It may be communicated by the sick to persons in health, but even then the poison is not, like that of small-pox, given off from the body in a virulent form, but is developed by the decomposition of the excreta after their discharge. 6. Consequently an outbreak of enteric fever implies poisoning of air, drinking-water, or other ingesta with decomposing excrement.

With regard to No. 1, I will note that typhoid fever epidemics are often very widely spread. Nos. 2 and 3 are universally admitted and I will say no more about them. Nos. 4, 5, and 6 imply the view so strongly held by Dr. Murchison that the disease is caused by a poison produced by decomposing fæces, which poison is not contained in the fresh excrement, and therefore amount to a denial of the fact that the disease is produced by an organism which is transmitted from one case to another. This view, like that of M. Gaultier de Claubry (who proclaimed the identity of typhus and typhoid fever) in France, obtained a great hold on the medical profession in this country and has been with considerable difficulty eradicated.

In 1873 Dr. William Budd produced his work on "Typhoid Fever, its Nature, Mode of Spreading, and Prevention," in which he maintains that *it was proved long ago* that "typhoid fever is in its essence a contagious or self-propagating fever," and he adds, "It is scarcely to the credit of the medical profession that this great truth should still be disputed." He then quotes a number of authors who did dispute it, but mentions "Sir Thomas Watson who in his admirable work on the Practice of Medicine has not only lent his powerful sanction" to the doctrines of the contagious origin and mode of spread of typhoid fever, "but has given an exposition of them in that terse and lucid style of which he is so great a master," and I may add that in Sir Thomas Watson's small work on the "Abolition of Zymotic Diseases," published in 1879, he says, referring to typhoid fever, "When we reflect how readily this origin of the disease (through water or milk) may escape suspicion, or may elude detection even when suspicion has been roused, we find continual reason for distrusting the argument for the spontaneous development of the disease based upon the difficulty of tracing the contagion to any conceivable source. For my own part I cannot but deem this argument altogether worthless." In his work Dr. Budd proves up to the hilt that the disease is directly contagious or communicable from one person to another, and he

[5] The bracketed interrogation mark after the words *de novo* in this paragraph is mine, as is that also in paragraph 8 following the word "generating."

gives the most remarkable examples of infection by direct contagion. As to this being one of the contagious fevers he well says: "The existence here, as in the other contagious fevers, of a latent period after the occurrence of the infection, the exemption conferred by one attack against any future attack, and, lastly, the immunity of large numbers of persons who though freely exposed to the fever poison yet remained proof against it, are characteristics of which the significance cannot be doubtful." He gives a graphic comparison between small-pox and typhoid fever. Each has a latent period; in each one attack protects against any future attack in the vast majority of instances, "so that if typhoid fever happens only once in life it is, as in small-pox, simply because the typhoid fever poison *cannot grow again* in a body in which it has once bred," and after pointing out that what we actually *see* in small-pox takes place in the diseases of the same group, including typhoid fever, he sums up: "*The living human body, therefore, is the soil in which this specific poison breeds and multiplies, and that most specific of processes which constitutes the fever itself is the process by which the multiplication is effected.* As in small-pox, so in typhoid—to spread by this mode of reproduction is not only a characteristic but the *master*-fact in its history." For him, "*all* the emanations from the sick are in a certain degree infectious. At the same time it is one of the principal objects of this work to show that what is cast off from the intestines is incomparably more virulent than anything else." Outbreaks of typhoid fever such as he describes, according to his view, "never occur except under one condition—that is to say, where no sufficient provisions have been made for preventing the discharges from the human intestine from contaminating the soil and air of the invaded area. Where these provisions are wanting the most spacious rooms and the freest internal ventilation afford no certain security against the spread of the fever." Finally: "Like malignant cholera, dysentery, yellow fever, and others that might be named, this is one of the great group of diseases *which infect the ground*. Hence the quasi-miasmatic character attaching to them all, which has misled so many observers as to their true mode of spreading."

It is not too much to say that in this admirable treatise Dr. Budd proves his contention up to the hilt, sufficiently, at any rate, to convince the highly-trained scientific mind of Professor Tyndall who, in a powerful letter to the *Times* dated Nov. 6th, 1874, referring to one of the outbreaks described by Dr. Budd, says: "How could a disease whose characteristics are so severely demonstrable have ever been imagined to be non-contagious? How could such a doctrine be followed out, as it has been to the destruction of human life?"

In March, 1874, I read a paper before the Epidemiological Society "On the Alleged Spontaneous Production of the Poison of Enteric Fever," from which I may be allowed to make the following quotations:—

> We are, however, told that the intestinal discharges from a patient suffering from enteric fever are not infectious when fresh and only become so after decomposition has set in, and in proof of this it is advanced that medical attendants do not take it from the patients, that nurses do not get it, and that other patients in the same ward, although using the same utensils, scarcely ever take the disease. Now it must be admitted that such cases are uncommon, though they are by no means unknown; indeed, I find that while Murchison, on page 461 of the second edition of his "Treatise on Continued Fevers," says, "I have never known or heard of a case where the fever has been communicated to the medical attendant not residing in the infected house," he says (p. 469) of Putegnat, who thought he had caught it from making a post mortem on a case, "It is true that he was seized a few days after the autopsy, *but he had attended both the patient and her mother during their illness*"; so that on one page we are told that the fever is not communicable because medical men do not get it from their patients, and 10 pages farther on we find that the fact that a medical man got it after making an autopsy is considered to be no proof that the body was contagious, because he had been attending the patient and her mother during their illness.
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> But is it proved in any sense of the word that the fresh fæces of a patient do not contain the poison of the disease? Certainly not. All that can be deduced from the facts is that they do not give out the poison in any considerable quantities into the air, and this makes it probable, without reasoning from mere analogy, that the poison consists, like the active principle of vaccinia, of solid particles, which do not evaporate from liquids in which they are, but may be carried up mechanically by the volumes of gas given off when such liquids ferment, or after the evaporation of the liquid may be desiccated and blown about; thus we see how it may be that the fæces have come to be regarded as more poisonous when decomposing than when fresh, or even as developing the poison during decomposition.
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> I say that there is not one iota of proof that the fresh stools do not contain the poison of the disease, and that to say so is like saying that a solution of sugar of lead or of corrosive sublimate, scented with, say, attar of roses, is not poisonous, because you can stay in the same room with it without being poisoned, or that a vessel of vaccine matter does not contain the active principle of vaccinia, because you can handle it without being affected by vaccinia.
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> I can understand the position taken up by Andral who "declared that he had never seen it exhibit the slightest contagious character"; or by Dr. Stewart who wrote in 1840, "In no case, though questioned with the greatest care, either in Scotland or in the hospitals of Paris, have I ever found the disease referred to contagion."
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> I can understand that taken up by Trousseau, by Dr. Budd, and by others, who maintain that the disease is essentially contagious. But I cannot understand the anomalous, as it seems to me, position of those who in effect say, "Well, it's not a contagious disease, but as you've certainly brought forward some cases in which it appears to have been communicated from man to man, we must admit that occasionally it is contagious."
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> That it is contagious, and most virulently so, I have not the slightest doubt; but I quite understand what those mean who say it is not: they mean that if you attend upon a patient suffering from enteric fever you are not likely to get it, while if you attend on one suffering from typhus or scarlet fever you are very likely to do so, unless you have had the disease before; they do not consider that this fact is not due to a difference in the contagious nature of the disease but to a difference in the form in which the poison is excreted from the patient, most of it being in the one case given out into the air which the attendants breathe, while in the other most of it is swamped in a mass of liquid which is removed as soon as possible. Those accustomed to small-pox, scarlet fever, and the like, of course said that enteric fever was not contagious when it was first brought to their notice, and there is no doubt that it is, under ordinary circumstances, very slightly so in their limited sense of the word; but that is not what is meant by those who now deny that, except under certain circumstances, it is not communicable from one person to another.
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> When we point to undoubted instances where a person suffering from enteric fever has taken it into a place where it was before unknown, but in which it has spread from that person, it is at once admitted "that there are unequivocal cases of enteric fever propagated in the manner described," but we are told that "such occurrences are exceptional, and that *the number of cases where the disease is introduced into a new locality without spreading far exceeds that in which it is propagated*," which means that the expedients adopted to get rid of the excretal matters were, in the cases observed (probably chiefly in large towns), generally sufficient to ensure the immediate removal of the infected fæces from the premises in a short time.
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> But I would put the facts in another light and would say: We see in how many cases we can prevent this disease from spreading; we can almost always point out the reason why it spreads in a house or town when it does so, and we ought to prevent its spreading much more frequently than we do.
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> Are we, then, able to trace every case of enteric fever to a previous case? Certainly not; and it would be very wonderful if we could. When we consider that a person suffering from this disease may go about for weeks, leaving the poison in several different places every day; that he may go about his work until so prostrate that he goes to bed to die; that he may fall down dead from perforation of the intestines without the disease having been recognised; that the poison which he has left in so many different places may be distributed broadcast in water, milk, sewer air, or some other vehicle,—when we consider all these things, we may well wonder, not that we are often unable to trace the disease to infection from a previous case, but that we are so often able to do so. From the fact that we are able so frequently to point out the source whence the contagion has been derived, and to trace it to a previous case, we have at any rate a strong presumption in favour of the view that when isolated cases occur, and there appears to be no connexion with previous ones, the fact is that we are unable to trace any such connexion, and it is clear from the nature of the disease that this must very frequently be the case; and, moreover, we have no right to assume that we even yet know all the methods by which the poison of this disease may be conveyed. It is only comparatively recently that milk has been recognised as a vehicle of contagion, and there may be, and probably are, many other media of which we have not yet any knowledge, by which the poison is conveyed from place to place.
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> It is clear that in towns, large and small, where strangers are continually coming and going, and where commodities of various kinds are brought from outside, and houses are connected with public sewers, it is not merely "difficult," as Dr. Murchison says, but on the face of it *impossible*, "to exclude the possibility of contagion," and so we may dismiss such cases at once. But then it must be allowed that many instances are on record where outbreaks of this disease have occurred in isolated villages and country houses, and where every effort has failed to trace any importation of the poison. It will be found on reading the published accounts of such cases that the possibility of importation in a variety of ways has been overlooked. A great many of them are cases of schools or other places where a number of people are collected together. No number of such cases would be sufficient to warrant the assumption that the disease arose *de novo* in any one of them. In most of the other instances we find that old cesspools, stopped-up drains, &c., have been disturbed, or have drained into wells, or leaked into the basements of houses. How are we justified in assuming anything more than that the filth contained the poison of the disease? How can we pretend for a moment to say that we have excluded the possibility of its introduction into masses of excrement which have been going on accumulating perhaps for years? The thing is manifestly impossible. And when we consider how many persons—visitors, servants, and vagrants—go to and from "isolated country houses," and their premises (stable-yards, &c.), we shall be disposed to hesitate before saying that we have excluded all possibility of importation.
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> I must confess that these considerations prevent my accepting any of the cases on record as cases where non-importation has been proved, and I cannot therefore accept the dictum that the disease "may be generated independently of a previous case by fermentation of fæcal and perhaps other forms of organic matter." Were this true, would not the disease be much more prevalent? How is it that a house or town may be in a condition eminently suited for the existence of this fever, as shown by the fact that when a case is imported the disease spreads, and often becomes a severe epidemic, and yet no case is heard of there for many years, until the importation takes place? One town that I have already alluded to is a most filthy, overcrowded place; it has been several times decimated by cholera, but no enteric fever

occurred there for many years, until one day a case was imported, and the disease spread like wildfire, showing that the conditions for its existence were most favourable; and such instances might easily be multiplied were it necessary. Besides, we know very well what disease sewer air causes—it causes diarrhœa. Over and over again have I seen whole households prostrated with diarrhœa, when air from a foul sewer has leaked into the house, or air from a blocked-up sewer or soil-pipe has found its way into the drinking-water cistern through the waste pipe and has fouled the water.

I therefore maintain that foul air contaminated by decomposing animal matters is capable of producing mere diarrhœa and that when it produces enteric fever it contains the poison of that disease, and that the arguments adduced to prove that this poison can be generated from such decomposing matters independently of a previous case of the disease are inadequate to do so; that in many of the cases where non-importation is supposed to have been all but proved it has not been even rendered a fair presumption, and therefore that in the present state of our knowledge we are not justified in saying that the disease ever arises *de novo*.

The correctness of the views maintained in the above paper has now been demonstrated by the discovery of the *bacillus typhosus*.

ABSTRACT OF

Three Lectures

ON

THE PULMONARY CIRCULATION, MORE PARTICULARLY IN RELATIONSHIP TO VARIATIONS IN CARDIAC ACTIVITY.

Delivered before the Royal College of Surgeons of England on Feb. 17th, 19th, and 21st, 1902.

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PREVIOUS workers upon the circulation through the lungs have mainly confined their attention to a study of the pressure changes in a pulmonary artery or vein in comparison with the pressure records in the aorta, and from these operations they have drawn conclusions as to the general variations of the circulation through the lungs. The close relationship of the two sides of the heart to the pulmonary vessels renders it, in most cases, a matter of considerable difficulty to decide, from observations of pressure changes alone, whether or not any active change has taken place in the pulmonary vessels. Hence the observations forming the subject-matter of the main portion of these lectures have been conducted by Dr. W. E. Dixon and myself during the past two years and took their origin from the application of another method—the plethysmographic—to the lung. This method has already proved of very great value in the study of the circulation in organs on the systemic circulation and has also proved a most valuable means of studying the circulation through the lungs under various conditions.

The operation consists in first exposing the lower lobe of the lung by the resection of two or three ribs. The lobe is then thoroughly freed up to the root of the lung, and if the object is to study the vascular changes one of two methods is adopted. In our first experiments we prevented the entrance of air into the lung by gently compressing it before inserting it in the oncometer. In this way the lobe does not expand with the ordinary air pressure used in artificial respiration. In a second series of experiments we first distended the lobe to its normal extent and then plugged the bronchus leading to the lobe by a pledget of cotton-wool soaked in vaseline, inserted by means of a long probe passed down the trachea. The lobe was then fixed in the oncometer and its variations in capacity recorded by connecting the oncometer to a piston or bellows-recorder. We have always simultaneously registered the aortic pressure by a mercury manometer. The advantages of the method lie chiefly in that it gives us at once a record of the changes in amount of blood contained within the lungs, thus showing immediately the production of an anæmia or congestion of the lung capillaries. By combining the information thus gained with the pressure changes in the four chambers of the heart we can often definitely determine the nature of the change that has been produced in a more certain way than can ever be obtained from records of the pressure changes only.

Variations in the flow of blood through the lungs may be caused by changes in the activity of the right heart or in the resistance offered by the pulmonary vessels and capillaries, and to this extent the problems offered for our study are similar to those so fully studied in the systemic circulation. Whereas, however, variations in the activity of the right heart produce but small effects upon the flow through the systemic capillaries, unless those changes be very pronounced, variations in the working of the left heart produce at once marked changes in the blood contents of the lungs. As Stolnikow has pointed out, the liver acts to a considerable extent as a blood reservoir on the systemic circulation, so that the right heart may take a greater or less volume of blood from the great veins without materially modifying the systemic pressure. So the lungs play a similar part to the left heart, acting as a reservoir in which blood may be stored if the left heart for some reason diminishes its output, and conversely contains a reserve of blood upon which the left heart draws when its output increases. It is this very close relationship to the two sides of the heart which makes the study of the pulmonary circulation of such difficulty and has led many workers into considerable errors.

In these lectures we shall therefore discuss the various experiments which we have performed in the following order: (1) the alterations in the pulmonary circulation due to purely cardiac changes; (2) the alterations due to variations in the systemic circulation, which may effect changes by alterations in the output of the left heart or by modification in the flow to the right heart; and (3) an examination of any changes due to alterations in the resistance offered by the pulmonary vessels.

The blood-volume curve given by a lobe of the lung in which the bronchus has been plugged in the manner described above gives the following features. There is a small increase in volume at each inflation by the artificial respiration apparatus of the remaining lobes of the two lungs, and there is a very marked volume-pulse occurring with each heart-beat. This volume-pulse is systolic in time and is therefore due to the output from the right heart.

Turning in the first instance to the effect of alterations in cardiac activity upon the pulmonary circulation we may first of all discuss the changes caused by excitation of the augmentors and accelerators on the one hand and of the inhibitory fibres on the other. Stimulation of the accelerator fibres which also usually causes augmentation, as a rule, leads to an increase in the volume of the lung and a rise in the aortic pressure. The increased volume of the lung usually persists longer than the rise in aortic pressure. In a few instances no increase in lung-volume is recorded and these cases are usually accompanied by a more marked rise in aortic pressure. Simultaneous records of the blood-pressure in the pulmonary artery and aorta show a marked rise in the former which may or may not be accompanied by a rise in aortic pressure. From these results we conclude that the nerves chiefly affect the right side. The output from this side usually shows a greater increase than that from the left: hence the blood-volume of the lung is increased. The various effects upon the aortic pressure show how variable the action is upon the left heart.

Stimulation of the vagus also gives very interesting results. With weak stimulation, resulting in much slower beat, the aortic pressure falls gradually and a marked decrease in the volume of the lung is recorded. A stronger stimulation, resulting in a much more marked fall in aortic pressure, leads to a quicker decrease in the lung-volume which, however, is no more extensive. In these cases the right auricle pressure rises considerably, but the effect upon the left auricle is much less marked. Hence we must conclude that the action of the vagus upon the heart is more particularly felt upon the right side. The diminution in volume of the lung can only mean a larger diminution in output of the right ventricle as compared to that of the left.

The next series of changes to be studied are those due primarily to an alteration in the systemic circulation. Of these we must distinguish two groups—namely, those in which respectively a rise or a fall in the aortic pressure is produced. These may exert an effect upon the pulmonary circulation either through a change in the rate of flow of blood into the right auricle or by affecting the output from the left heart. At present the latter of these two factors has been chiefly studied.

As the simplest case we may take the effect of restricting

the outflow from the aorta by partially or completely blocking the aorta at the lower end of the thorax. Waller and later observers have shown that the result of clamping the aorta is to cause a big rise in the aortic pressure, followed quickly by one in the left auricle. There is no rise in the pulmonary artery pressure unless the compression is kept up longer than about 15 seconds. There is usually no effect upon the right auricle pressure. We have found that the effect upon the lung as observed by recording its volume changes is to produce a very marked congestion, the mode of production of which is in the failure of the left ventricle to empty itself against the raised aortic pressure. In consequence of this fall in output from the left side the blood in the pulmonary veins cannot flow in normal quantities into the left auricle and is therefore accumulated in the pulmonary veins and capillaries. There is no incompetence of the mitral valves. A quite analogous series of changes is also observed when other procedures for raising the systemic pressure, apart from a direct action upon the heart, have been adopted, such as stimulation of the medulla, the vagi having been previously divided, stimulation of the divided splanchnics, or stimulation of the upper surface of the spinal cord which has been divided in the lower cervical region.

We next come to the effects produced by methods which act upon the heart as well as the blood-vessels. Of these one of the most important is suprarenal extract. This is known to cause a large rise in aortic pressure due chiefly to constriction of the peripheral arterioles; but it also acts upon the heart, whose rate is increased and output nearly doubled. The effect on the heart, however, is complicated, if the vagi be undivided, by a marked inhibition of the heart occurring mainly during the period of heightened aortic pressure. The effect of suprarenal extract upon the blood-volume of the lung is to cause first a small diminution in volume, soon followed by a marked increase which persists during, and for a short time after, the rise in aortic pressure. Thus the main effect is to produce a distinct congestion of the lungs. The effect upon the pulmonary blood-pressure is a rise to nearly double its original valve, commencing with, but lasting rather longer than, the rise in aortic pressure. The left auricle pressure at first falls, but rises rapidly when the aortic pressure has reached a high point. The effect upon the right auricle pressure is a gradual and slight rise following the rise in aortic pressure. From these results we may conclude that the effects are mainly due to the action of the peripheral blood-vessels in causing the large rise in aortic pressure. They are, however, complicated by the action upon the heart. The increased output observed at first explains the preliminary diminution in volume of the lung and the rise in pulmonary pressure. The later effects are due to the rise in the aortic pressure and the consequent inability of the left ventricle to empty itself. The more reflex inhibition there is produced, the more marked, as a rule, is the pulmonary congestion. These facts have an important bearing upon the question whether suprarenal extract can be advantageously used in hæmorrhage from the lungs. Certainly in the doses which we have employed, and with intravenous injection, our experiments strongly contra-indicate its employment for such a purpose. Whether a smaller dose, given by the mouth, so that the admittance into the circulation is much more gradual, can produce a pulmonary constriction unaccompanied by a congestion is now being investigated. Some further points in regard to the action of the extract upon the pulmonary vessels are described below.

A drug of importance to us, in that it causes a fall in the systemic pressure, is amyl nitrite. This is known to produce its main effect by dilatation of the peripheral blood-vessels. The disadvantage against us here is that we are not quite certain of the details of its action upon the heart. In the cat a small dose of amyl nitrite sufficient to cause a marked fall in aortic pressure causes a large congestion of the lung, which takes place in two stages. There is a primary and moderate increase in the blood-volume, followed by a slight diminution, and this again is succeeded by the main volume increase, the nature of the record seeming to show that we are dealing with at least two different effects. The blood-pressure changes, so far as we have at present decided, have shown only slight changes, the main one being a rise in the left auricle pressure. The effect upon the pulmonary pressure is very slight and mainly in the direction of a late rise. We think, therefore, that the probable explanation of the congestion produced in the lung is a preliminary dilatation due to the increased flow to the right side of the heart, followed by a later effect due to the action upon the heart which is mainly expressed upon the left side. This fails to empty itself so completely and thus accounts for the rise in the pressure in the left auricle. In the dog the effect is not quite so striking. The changes are in the same direction but are much less in degree. There is probably a much better compensation in this animal than in the cat.

ARE THERE VASO-CONSTRICTOR NERVES TO THE PULMONARY ARTERIES?

This question has been already worked at by many observers; but we need here only consider the facts brought forward by Bradford and Dean and by François-Franck. All these observers came to the conclusion that there are vaso-constrictor nerves. The evidence looked for by Bradford and Dean was in one of three directions. First, a rise in the pulmonary pressure out of proportion to the aortic pressure; secondly, a rise in the pulmonary pressure with no accompanying rise in the aortic pressure; or, thirdly, a rise in pulmonary pressure accompanied by a fall in aortic pressure. In one series of their experiments they excited the vaso-motor centre in the medulla, having previously divided both vagi. This caused a large rise in the aortic pressure and a fairly well-marked rise in the pulmonary pressure. The spinal cord was then divided between the sixth and seventh dorsal nerves and the stimulation repeated. The aortic-pressure rise was now less than before, but there was the same rise in the pulmonary pressure. Direct evidence was also sought by stimulation of the anterior roots of the upper dorsal nerves. This caused a rise varying in amount, but never very marked, in the pulmonary pressure, accompanied at times by a fall in the aortic pressure, at other times by a rise varying with different animals and with the nerve stimulated. From experiments such as these they concluded that the only explanation of the pulmonary rise is an active constriction of the pulmonary arterioles.

François-Franck's main method was to simultaneously measure the blood-pressure in the pulmonary artery and in the left auricle, and he considers that a rise in the former, accompanied by a fall in the latter, must mean pulmonary constriction. In his experiments he stimulated the sympathetic chain in the thorax from the sixth thoracic nerve up to the ganglion stellatum. The usual results he obtained were a rise in the pulmonary pressure, a fall in the pressure of the left auricle, and, as a rule, a fall in the aortic pressure. On some occasions he observed a rise in the aortic pressure. In some of his experiments he recorded the blood-volume of the lung by a plethysmographic method, and invariably obtained an increase in volume as the result of the excitation of these nerves. This is an effect the reverse to that which we should *a priori* expect, and he supposes the result to be due to the great distensibility of the pulmonary arteries. If the arterioles are constricted over the whole lung the blood would be stored in the large vessels, and he supposes that the increase in volume thus caused is more than sufficient to compensate for the diminished volume in the capillaries and veins.

Our criticism of the results of all these experiments lies in two directions. First, the effects obtained are always very small, and all observers agree that the influence of the nerves on the blood-vessels can only be of slight degree. But the main objection to these experiments is that they have not sufficiently excluded the action of the nerves upon the heart; and until this is done it is impossible to rely on experiments of this class. Bradford and Dean consider that by taking into account those tracings only in which no apparent cardiac acceleration is to be seen any changes must be due to an action upon the pulmonary blood-vessels. Roy and Adami, however, have shown that excitation of some of the sympathetic fibres running to the heart gives rise to augmentation without acceleration, and many of our experiments have quite clearly corroborated this. If augmentation takes place without acceleration the pulmonary pressure will rise because the output from the right side is increased. The aortic pressure will also tend to rise because the output from the left side is increased; the pressure in the left auricle will fall because the left ventricle is taking more per beat; and these are the effects which we think have in reality taken place in the records of these observers. The only difficulty lies in explaining the fall in aortic pressure which they have commonly obtained. Bradford and Dean experienced exactly the same difficulty and concluded that

their experiments were not sufficient to decide the cause of this fall. That augmentation has taken place in many of François-Franck's experiments is quite clear from his own tracings, for where he includes the volume-curve of the lung there is always a quite marked increase in the volume-pulse which can only indicate an increased output from the right heart.

Turning next to our own experiments we have stimulated the white rami communicantes of the upper thoracic nerves, the sympathetic chain itself, and the fibres from the ganglion stellatum. We have also attempted to exclude any possible cardiac action by a preliminary division of all the branches of the sympathetic that we could find running into the heart. We have, however, found that it is quite impossible to divide all these fibres without injuring those running to the root of the lung. We have also stimulated the fibres at the root of the lung, but in this position we have only obtained completely negative results. The usual effect of stimulating the fibres leaving the ganglion stellatum is a fall in the volume of the lung, quickly followed by an increase. In some cases we recorded an increase in the volume of the lung from the start, and in a few cases, which, however, are very rare, we have observed a diminution in the volume of the lung during the whole time of stimulation. Wherever we got a diminution in the volume of the lung we invariably found an increased volume pulse, and simultaneously a rise in the aortic pressure. We think that the whole effect is best explained by the cardiac augmentation which these results indicate, and that it is not necessary to invoke any action upon the pulmonary vessels for their explanation. In those cases in which there is an increase in volume of the lung from the start there is usually an increased volume pulse and the aortic pressure shows in many cases practically no change, and lastly in those cases, the commonest, in which a preliminary diminution is followed by an increase in the volume of the lung the increase in volume pulse is well marked, especially at first, and there is a decided rise in aortic pressure, followed by a gradual fall as the volume of the lung increases. Stimulation of the accelerator nerve itself, after it has left the ganglion stellatum, produces as a rule an increased volume of the lung, with increased volume pulse. Hence we conclude that all the results that we have obtained can also be explained in the simplest manner as of purely cardiac origin, and we therefore attempted to detect vaso-constrictor nerves, if any are present, by a different type of experiment. The nerves to be stimulated having been isolated the animal was killed by bleeding; the blood was whipped and was placed in a reservoir. Meanwhile cannulæ were tied in the pulmonary artery and in the left auricle. One lung was then ligatured at the root. The cannula in the artery was then connected to the reservoir and blood perfused at constant pressure through the intact lung. The outflow was then recorded by a graphic method. We never obtained the least effect on stimulating any of the fibres leaving the ganglion stellatum, and hence we conclude that there are no vaso-constrictor fibres to the pulmonary vessels. Experiments of this type, we think, would certainly have given us a positive result had such fibres been present, for it is easy to obtain such results with, for instance, the nerves to the vessels of a limb.

THE ACTION OF SOME DRUGS UPON THE PULMONARY CIRCULATION.

We have already stated the general effects of suprarenal extract upon the lung and pulmonary circulation. We have also investigated the action of the suprarenal on the pulmonary arteries by direct perfusion. It gives us a very striking result; whereas perfusion of very dilute suprarenal extract through any of the systemic vessels causes their almost complete closure, the effect upon the pulmonary vessels is in nearly all cases exactly the opposite—namely, a markedly increased rate of flow. Only in one instance have we obtained constriction, and then the effect, though marked, was in no degree comparable to that which we should obtain, for instance, upon a limb. These experiments are, of course, of importance in considering whether suprarenal extract is of value in hæmorrhage from the lungs, but our conclusions up to the present must be somewhat guarded because our experiments have not yet sufficiently decided the action of small doses. With regard to the volume changes produced in the lung by suprarenal extract the dog again shows a difference from the cat. The changes, though in the same direction, are very much smaller and the dilatation is more accentuated if the vagi have been previously subdivided—a result which we should naturally expect from the much greater and more prolonged rise of aortic pressure that occurs under these circumstances.

The action of nicotine is somewhat similar to that of suprarenal extract, though, as it exerts less effect upon the heart, its action being mainly confined to the peripheral blood-vessels, the results are rather simpler. Still, they are in the same direction—that is, to the rise in the aortic pressure there follows a congestion of the lung and simultaneously a rise in the pulmonary vein pressure and pulmonary artery pressure.

Pilocarpine gives interesting results in that it tends to produce systemic vaso-constriction, the effect of which is, however, obscured by the marked cardiac inhibition simultaneously produced. If the cardiac inhibitory fibres be paralysed by atropine, pilocarpine produces practically the same results as nicotine. When given with the cardio-inhibitory mechanism intact it produces a great increase in the volume of the lung which is due to the cardiac inhibition. As this decrease in volume takes place it must mean that the output from the left heart is less diminished than is that from the right heart. Muscarine produces the same effects as pilocarpine.

THE EDUCATION OF EPILEPTICS.

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TWELVE years ago the first step in improving the position and comfort of epileptics in England was taken at Liverpool by the establishing of the epileptic homes at Maghull. Previously to that time our epileptics, if they were poor, were consigned to the imbecile wards of the workhouse, and if they were rich they were looked after by relatives or by attendants, or were taken as boarders by people of various classes of life, who for a consideration relieved the parents of trouble and responsibility without being always qualified for the duties which they thus undertook. The condition of those epileptics whose relatives were unable to engage caretakers and who did not wish to send them to the workhouse was often miserable in the extreme. The relatives were always kept in a state of constant anxiety and dread, and the patients were frequently so confined to limited surroundings and denied all liberty that it was no wonder that they became imbecile, stupid, or even insane. In spite of all the precautions of anxious relatives and attendants dangerous and sometimes fatal accidents frequently occurred, and the death of the unfortunate patient was too often considered a special providence and relief to all concerned. In the workhouses the patients were simply "herded" with the imbeciles and the harmless insane inmates, without any effort being made for instruction, employment, or amusements. The primary objects of the establishment of the colony at Maghull were to keep epileptic patients safe, to occupy and to train their bodies and minds, and to give them as much liberty as possible with due regard to their safety and to the feelings and prejudices of their neighbours. These objects have been successfully carried out and to an unexpected extent. But it was found as the work of mental and physical training progressed that the education of the patients was often in a very backward state and required to be dealt with.

Defective education arose from various causes. In a considerable number of cases the patients were kept from school by order of their medical attendants, under the plea that the brain must not be excited or that the patient must not be "bothered." The patient was allowed to do whatever was most agreeable—and education that necessitates "going to school" is not generally agreeable to a large majority of young children. The relatives, following up the professional advice to its logical conclusion, allowed the patients to do as they liked in all other matters as well as in regard to education, and the little rascals soon found out that they could compel the relatives to give them whatsoever they wanted by simulating the symptoms of the onset of an attack. This course of treatment of young epileptics cannot be too

strongly or too publicly condemned. The growing brain that has been disturbed by a fit can only be strengthened and improved by judicious education, especially by teaching habits of self-control and of self-denial such as have to be taught to all other children. It cannot be wondered at that the very opposite treatment produces little savages that have developed habits very difficult to eradicate, and that any information which they possess is very often useless or of an undesirable kind. The most frequent cause of deficient education was, however, found to be the direct effect of the epileptic attacks. We have had several examples of patients who before epilepsy developed were bright, intelligent, and even precocious children, and who promised to become good scholars and to be a credit to their parents and their teachers. Sometimes after the first attack, or sometimes after a series of attacks at the onset of the disease, the brains of these children have been, as it were, swept clean like that of a baby, and the patients have become suddenly dispossessed of all the knowledge they had acquired. In many of these cases, however, only certain of the mental faculties are impaired. The faculty of computation suffers very frequently (in some notable exceptions this faculty curiously has remained strongly developed amidst a very general wreck), and memory also suffers severely.

Re-education is a slow, difficult, and irksome process under such cerebral conditions and requires to be intelligently carried on and in directions suitable to each case. Sometimes re-education has to be entirely of a mechanical kind as the patient does not appear to have any powers of continuous thinking but is well able to direct his physical energies. Others learn with avidity and soon regain what has been lost. In other cases certain faculties are highly developed; the musical, the imitative, and introspective faculties are instances of this. In the latter most minute self-analyses are constantly being made and these do not conduce to the patient's happiness and welfare. Other children will labour diligently to re-learn to write, to read, and to cipher, but the task is a very uphill one on account of the great defectiveness of their memory. The lessons of the day, that seem at the time to be thoroughly studied and acquired, are to a large extent forgotten by the next afternoon, and teachers are prone to give way to despair until they find out that the normal rate of progress is necessarily slow; but still there *is* progress and that progress increases as the experience of the teacher in teaching epileptics increases. The education of epileptics can best be carried on after close consultation between the medical officer and the teachers, so that the latter may be prevented from wasting strength and enthusiasm in trying to educate a faculty of the brain that has been entirely lost and may devote their energies to the education of those powers which still remain, and so to educate them that they may be of practical use to the patient in after years. The education of our patients resolves itself into two classes—first, of all those who are of the ordinary school age, and secondly of older patients whose education has been defective, or in whom the results of early education have been lost through the disease from which they suffer.

The great majority of the patients at Maghull have had opportunities of being educated and have been to school up to puberty. An analysis of the notes of 385 patients shows that 162 did not leave school till the age of 15 years, that 63 did not leave school till they were 12 years of age, and that 58 did not leave school till they were 10 years old; 18 have been educated at home, while 37 have either not been at school at all or were so irregular that they had no education whatever. Of 39 we have no information as to how they have been educated. The state of the education of these patients when they were admitted to the home was in 45 cases *nil*, in 87 imperfect, in 119 fair, and in 134 good. In these 385 cases we find that in 47 cases epilepsy began soon after birth, in 38 cases before five years of age, in 87 cases before 10 years of age, in 25 cases before 12 years of age, in 39 cases before 14 years of age, and in 122 cases after 14 years of age, so that in 186 cases epilepsy did not set in till the children were over 10 years of age.

The children of school age whom we have at Maghull are under the care of a teacher who trains them as far as possible according to the capacities of their minds and with whom they spend a certain number of hours daily either at work or at play. The adults whose education has been defective or has been impaired by the disease go to an evening continuation school managed by teachers according to the requirements of the Board of Education. This continuation school has been very satisfactory in every way. It interests the patients, it improves their education, and it occupies in a useful way a certain number of evenings during the winter season. The school inspectors approved of it very highly and we have been able to obtain a small grant from the Education Department. The subjects taught are reading, writing, arithmetic, wood-carving, joinery, and different technical subjects.

The day-school for the children has been equally beneficial from every point of view, except that of the Education Department. When we applied to that Department for a grant to our day-school we found that we had to comply with certain regulations which seemed to us very unnecessary and even undesirable. Our establishment has *grown* up, the buildings being added according to what we, from experience, decided would best supply our wants. The Department has, however, laid down certain arbitrary rules for the education of epileptic children, conspicuous amongst them being the following—viz., that the children must live entirely on the ground floor, and not have to ascend stairs of any kind; that not more than 15 are to live in one cottage; and that there are not to be more than four cottages in any one establishment. The children must also be completely isolated from adults during the whole course of their school life. Now, we could not fulfil these conditions without recasting our colony, incurring great expense, and giving up principles of management too precious in our opinion to be abandoned without sufficient practical reasons for the change. At the time that we made this application the only other home in England was that at Chalfont, and on applying to the authorities there we found that although they had built cottages much smaller than any of our buildings and could have managed to comply with the "ground-floor law" they could not fulfil the requirements of the Education Department, and we believe that they have consequently arranged not to undertake the task of educating epileptic children under the Department. We persevered, however, with our application and the Department sent down an inspector. The final decision was that the Department would not assist us by any grant in educating the few children whom we had at our home at Maghull unless we would spend a large amount of money that we could ill afford to use for this purpose.

Now, the question that has sorely puzzled us is where the experience that dictated the regulations for the treatment of epileptic children was obtained. Our home at Maghull was the first establishment of its kind in Great Britain, and that at Chalfont the second, and although there are others being constructed none of them have yet come before the public as working institutions. The Maghull Home has been in existence for 12 years and now contains about 140 patients of all ages and sizes who have been going up and down stairs all these years, and we have not found that the stairs are so dangerous as to require their abolition. Indeed, as far as our experience actually goes, the patients seem to be safer on the stairs than they are on the ground floor. Of course, this seems a ridiculous statement, but it has reason on its side, as patients when exercising their faculties do not as a rule have attacks. It proves that this idea of no stairs, as far as danger to epileptics is concerned, is an old woman's fancy. It is a view that appeals to the ladies and we have had often great difficulty in freeing strong and vigorous epileptics from the thraldom of affectionate relatives who are only content when their epileptic, the object of their care, is on a bed or a sofa with somebody sitting alongside. We have occasionally seen epileptic patients going down the stairs in their own houses. A nervous mother or other relative stands at the foot of the stairs calling out from below in a tone of anguish, "Be careful," or "Take care"; two other relatives hold the patient at either side, all in a state of dread and excitement that certainly should be sufficient to induce a fit if anything could possibly induce one; and probably a fourth walks behind calling out directions from above. The patients are, of course, very indignant—and, I think, justly indignant—at being treated as such helpless objects, and would it be any wonder if after years of such precautions such patients would actually at the last find themselves unable to go up or down stairs at all? Where did the Department of Education learn this experience of the dangers of stairs? Certainly not in Germany, for we have been through a good number of the institutions in that country, and we have not found any epileptic institutions where they have not stairs. In fact, the stairs seem to be

more in evidence there than in any home in this country. We do not advise *steep* stairs. We have made safe stairs, and we take care that certain patients go down stairs in the morning and stay down as far as possible till the evening, and that they are watched by nurses during the time that they are going up or down stairs, and we do not think that anything more is necessary in regard to stairs. An epileptic may easily lose his life even in a padded room unless he is looked after, and when well looked after epileptics are safe under all usual conditions of life. We believe in *supervision*, and not in *architecture*, for our patients' safety, and our experience has fully justified our faith.

The Education Department does not propose that these children shall be kept in stairless houses all their days. They will grow up to adult life. They will go home or they will go to other institutions, and it is not practical to insist that people who have epileptics in their family must keep them down stairs all the time, or that institutions or people who have anything to do with adult epileptics should have rooms for them on the ground floor, and yet such would be the logical inference to be drawn from such regulations. If not, it is certain that if children are not allowed to go up and down stairs during their school life they will be very much less fitted for going up and down stairs safely if they only begin the ascent and descent when their habits have been acquired. I think that we may therefore call upon the Education Department to show some valid reasons for this regulation or to delete it from the conditions of epileptic schools. Besides, at the present stage, when the practical education of epileptics is really confined to one or two institutions, it seems a mistake not to encourage efforts to correct this defect of the educational system until the Government or a local authority has established schools.

We now come to the second regulation—of not having more than 15 children in a cottage, and of their being entirely separate from adults. Of course, the idea of the Education Department is to imitate family life. Well, 15 is a large family, and the idea of calling this "family life" pleases philanthropists who have a crank that way more than it really imitates in any sense of the term what we understand by family life. Family life means father and mother, big brothers and sisters, and small brothers and sisters, and servants and attendants of various kinds. The big ones look after the little ones and they do each other good in their offices towards each other. In family life they go to schools, they mix in the playground with all sorts of boys and girls, at home they come in contact with relatives and friends, and in the streets and lanes they meet with strangers old and young. In these Government epileptic schools, limited by sex and by age, and with strangers looking after such a large number, where does the family life come in? The children in these schools will be useless and helpless noodles unless after leaving such a school they are "licked" into human shape by the influences that mould the best humanity. We maintain that we have the best family life at Maghull. The boys and the girls live in separate buildings, where they sleep, of course, in separate rooms from the adults. From each building they go to school—a mixed school. Here they are under the teacher for the day, but in the evenings they take part in social life, and share in entertainments with the bigger boys and girls, due precautions being taken through the constant supervision of nurses that the companions are suitable and that the bigger patients who would take up with a younger child are suitable for that companionship. We know that special care has to be taken with epileptics in these matters, but knowing that we think in this respect also that the careful looking after by attendants is far better for the training of all classes and both sexes under natural conditions than is government by stone walls.

Then, again, the schools to be recognised by the Education Department are not to have more than 60 children altogether. Now, it has been hinted at in the beginning how the minds of epileptics are altered by the disease and how various must be the means of education, how numerous must be the classifications, and how many teachers there must be to instruct each classified group in a school of only 60 children. The necessary teaching would be most unnecessarily expensive under such restrictions. Some classes would only consist of two or three children and in all cases the classes must be necessarily small. But if we had a larger number of children to group we could then manage to give each teacher the full number of children who can be taught together and so limit the expense in a reasonable way. At the same time we would be able to maintain the necessary amount of emulation in large classes that could not be kept up if the number in each class were too small.

We are looking at the matter from a practical point of view. We have no rates to fall back upon, and the regulations which I have described really put it out of the power of philanthropic institutions to overtake the education of the children according to the rules of the Education Department. But teaching the children as well as the adults is a therapeutic measure. We believe that it tends to the recovery of the children that they should be educated, and for this reason we are retaining our school unassisted by the Education Department. We think, however, that an unnecessary obstacle has been placed in our way and that institutions having the care of epileptics have been discouraged where they should have been encouraged.

Liverpool.

A SHORT CONTRIBUTION TO THE STUDY OF GENERAL INFECTIONS PRODUCED BY THE STAPHYLOCOCCUS AUREUS AND BY THE STREPTOCOCCUS.

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THE general infections produced by the pyogenic micro-organisms (staphylococcus and streptococcus) are well known; there is therefore no necessity to speak of them in general. But the narration of particular cases is always, I think, of great utility because in them it is often possible to find some interesting feature. For this reason I wish to describe briefly some cases that have come under my notice in the course of my practice. Two of these, which I published in an Italian medical journal, *Il Policlinico*, in 1898, were caused by the staphylococcus aureus.

CASE 1.—The first of these two patients was a medical man who suffered from a spot of chronic eczema behind the left ear. This spot was very irritable and he was constantly scratching it, sometimes producing excoriations. One day he opened an abscess on the arm of a female servant and then went to disinfect his hands, but on the way he scratched the spot behind his ear. Two days afterwards he noticed near this spot a very red painful swelling which rapidly became larger and more painful and his temperature rose to about 102° F. A surgeon who was called in three days afterwards made a deep incision in the phlegmon, but very little pus came out. The wound was dressed frequently during the ensuing week and appeared to improve. In spite of this the general state of my patient became worse and worse and his temperature continued very high (from 102° to 104°). It was not possible to find a local condition adequate to account for this high temperature, so I supposed that a general infection had resulted from this abscess. A vein of one of his arms was punctured in order that a bacteriological diagnosis might be made and at the same time care was taken to isolate the micro-organism which caused the abscess in the woman. In both cases I found the staphylococcus pyogenes aureus in pure culture. Some days afterwards small abscesses were observed in different parts of the male patient's body, all of them being caused by the staphylococcus pyogenes aureus. The only internal lesion that he presented was a serous pleurisy, in which I found, not the staphylococcus aureus, but the staphylococcus albus. The abscesses that I opened, some of them as large as a man's fist, from the beginning to the end of the illness were about 60 in number. The patient's temperature remained always very high and he died in two months with symptoms of cardiac paralysis.

The woman had many other abscesses in different parts of her body after the one in her arm, but she made a good recovery, and it is necessary to observe that except for the pain caused by some large abscesses she was always free from fever or other complications and was able to attend to her work.

From this case two inferences may be drawn. 1. Considering that the staphylococcus pyogenes aureus produced

in the woman only abscesses, whilst in the male patient it produced a general infection, which ended in his death, it appears evident that this result was due not to the inherent and necessary virulence of the micro-organism but to the special conditions of the male patient, imparting to the staphylococcus a virulence which it did not possess in the case of the female patient. 2. Laboratory investigations tend to demonstrate that the staphylococcus pyogenes albus is only an attenuated form of the staphylococcus pyogenes aureus. Now, the male patient was affected during his illness by a pleurisy which was serous and which always remained so, and I found in this serous exudation only and constantly the staphylococcus pyogenes albus. Hence when it is remembered that in every part of the body of the patient purulent lesions and the staphylococcus pyogenes aureus were found, it is permissible to suppose that the pleura possessed the faculty of attenuating this staphylococcus pyogenes aureus, which by virtue of this attenuation became converted into the staphylococcus albus and was no longer able to generate pus.

CASE 2.—The second of these two cases was that of a boy who was wounded by a nail in the right leg. Three days afterwards an abscess, which was opened at once, appeared at the seat of injury. In spite of this operation I noticed 48 hours afterwards that there were some abscesses on the boy's body and that he presented symptoms of meningitis. He died in six days. Blood withdrawn from one of the veins of his left arm contained the staphylococcus pyogenes aureus in pure culture.

This case was not of very great importance, but I have related it because it is useful to compare it with the preceding one. Both were cases of pyæmia, because I observed the formation of abscesses in each of them. But the course of the disease was very different in the two cases. In the first it was chronic, because the patient died only after two months' illness, whilst in the second it was very acute, death occurring six days after the beginning of the attack.

The two following cases were caused by the streptococcus and, I think, were also very interesting.

CASE 3.—The patient, who was not under my care but under that of other medical men, was a woman who for some years had suffered from a chronic inflammation of the gums and maxillary alveoli with production of pus. She consulted many specialists but did not derive any benefit from their suggestions. At the beginning of last year she caught a cold which was accompanied by pyrexia and was followed some days afterwards by inflammation of the throat and pharynx. The matter appeared to be of little importance at first, but a sudden severe pain in one of her ears, together with the continuance of the pyrexia, caused her medical advisers to suspect suppuration of the middle-ear. These conditions remained without change for some days until the symptoms of mastoid suppuration appeared. She was operated on at once, but a general infection caused by streptococci followed the operation, and as soon as this diagnosis was established Marmorek's serum was used. It, however, produced no effect and the patient died in a week, during which her temperature was always about 105° F.

CASE 4.—The patient was a man, 48 years of age, who had been in good health until the age of 40 years, when he began to suffer from chronic inflammation of the gums and the maxillary alveoli, accompanied by the formation of pus. He consulted many specialists, but no one was able to effect a cure. When he reached the age of 45 years I was obliged to remove his right testicle, because it was found to be affected by tuberculosis. He made a good recovery after the operation and apart from his dental trouble his health was otherwise satisfactory. One day in November last year he had a severe sore-throat, which he did not treat in any way, but went to his business as usual. In the evening he had a violent fit of shivering followed by high temperature and it was obvious that this sore-throat and pyrexia were caused by a phlegmon of the pharynx. In the course of the next few days an abscess formed in the right tonsil. This abscess was opened four days after the beginning of the inflammation of the pharynx; a moderate quantity of pus escaped, and this on cultivation showed the presence of a very small streptococcus and of a saccharomyces, of which I will speak subsequently. After the operation the patient felt very much better, the pain in his throat subsided so that he became able to swallow, and his temperature, which had hitherto been about 100° F., fell to 98°. But about 7 A.M. next day he was suddenly seized with a shivering fit, followed by a rise of temperature to 104°. The suspicion of a general infection produced by one of the micro-organisms that I had found in the pus of the abscess entered my mind at once, and with the view of confirming the diagnosis some blood was taken from a vein of his left arm. In order not to lose time and thinking that the infection was due most probably to the streptococcus I began to use Marmorek's serum. In the first 24 hours 50 cubic centimetres were injected, but the patient's condition grew worse, and his temperature remained permanently high, being always about 104°. The use of Marmorek's serum was continued during the next two days, but in spite of it the patient died from failure of the heart unaccompanied by any localised lesion.

The micro-organism isolated from the blood was a streptococcus which had the same microscopical character as had that found in the abscess. I made experiments on rabbits and guinea-pigs with this streptococcus, with the streptococcus isolated from the pus, and with the saccharomyces. The lesions produced by the streptococcus derived from the abscess corresponded with those due to a streptococcus of moderate virulence, whilst the streptococcus isolated from the blood possessed a great virulence. The saccharomyces injected either into the veins or under the skin, or into the peritoneum, caused the death of the animals. When it was injected into the veins the animals died in 44 hours with lesions of all the organs, especially of the liver and the spleen, which was 10 times larger than normal. After injections into the peritoneum some of the animals died in four or five days from acute peritonitis, others more slowly, without evident lesions, but in a profound marasmus and presenting a little swelling of the spleen. Injections made under the skin had a different result; either the animals died from marasmus with a little swelling of the spleen or else they lost weight for some days and then recovered.

Microscopical examination of the organs of the animals which died after the injection of saccharomyces into the veins showed the presence of many spots of inflammation in which, by appropriate methods of staining, the saccharomyces was found. All the organs, especially the liver and spleen, were profoundly degenerated.

From these last two cases of general infection some important information may be derived.

1. It has been already said that the death of the male patient (Case 4) was caused by the streptococcus, which was found in the blood. It is therefore logical to conclude that the saccharomyces found in the abscess had no influence upon the development of this general infection, but I nevertheless hesitate to adopt this conclusion. Without paying attention to the fact that the streptococcus found in the blood was more virulent than was that cultivated from the pus, because it would be easy to explain this fact by supposing that it acquired this virulence whilst in the tissues of the patient, it must be borne in mind that the abscess was caused, not only by the streptococcus, but also by the saccharomyces, which was very virulent. Had this saccharomyces no influence at all upon the migration of the streptococcus into the blood or had it a share in preparing the way for the streptococcus? Or, in other words, did not the phagocytosis, the natural defence of the living body against micro-organisms, become inefficient on account of the presence of the streptococcus and the saccharomyces acting together, although it might have been efficient if the streptococcus had been alone? I have now only hinted at this question with the view of suggesting that the saccharomyces which are found in the mouth may be dangerous, not only on account of their pathological properties, but also, perhaps, because when they act along with other micro-organisms they render the defence of the body more difficult.

2. Both of the patients, the female (Case 3) and the male (Case 4), had suffered for many years from disease of the teeth accompanied with the production of pus, and Professor Augusto Murri of the University of Bologna, who has had the opportunity in his large practice of seeing many patients, has assured me that he has often in inflammation of the throat seen suppuration of the adjacent lymphatic glands or, what is worse, the occurrence of general infections in persons who were the subjects of chronic disease of the gums and maxillary alveoli attended with the production of pus. What can happen in these cases? To explain these ill-effects following inflammation of the throat in persons suffering from this disease of the teeth it is necessary to admit that the micro-organisms which exist in the saprophytic state in the mouth become virulent when a chronic illness of

the alveoli and gums is present, because in the purulent material that is produced they find a very congenial soil and they thus acquire a certain virulence. In the next place they enter the tissues at points where the local reaction is insufficient to hinder them from migrating into the nearest lymphatic glands, or into the blood, where they cause a general infection. It would be of great scientific interest to test this hypothesis by experiments on animals.

3. In both cases Marmorek's serum was used and it appeared to be without influence upon the course of the infection.

Bologna.

ELECTRIC SHOCKS AT 500 VOLTS.[1]

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A GOOD deal of misapprehension exists as to the circumstances under which shocks at 500 volts may be felt or the conditions which may lead to serious consequences. The electric pressure of 500 volts has become well established as the standard for electric traction, but apparatus designed for this pressure can be arranged to take another 100 or 150 volts without appreciable alteration. Conditions of commercial standardisation seem to set the limit for working at about 600 volts; and it is fortunate, from the point of view of safety, that no further extension of pressure under ordinary conditions is likely to be needed.

Since in a few cases shocks at 500 volts have been fatal newspapers have not hesitated to argue from the particular to the general and have assumed that all such shocks involve serious injury, if not death. For once they are in good company; the technical press and eminent practical electric traction engineers seem to have a horror of 500 volts. Such horror has its wholesome side, but ignorance brought face to face with imaginary horrors may result in panic. Modern journalistic sensationalism has made the most of the accident which occurred in Liverpool in February, 1901, and such was the scare that months afterwards, when a harmless necessary trolley-wire fell on to a tramcar, passengers, not only jumping to the conclusion that they were threatened with a hideous death, jumped to the ground and sustained serious injuries. Irresponsible correspondents have suggested in the newspapers that to fall on the electric rails of the Central London Railway is to be grilled alive; they knew no better. But when during the inspection of the last extension of the City and South London Railway I stood on the rails in wetted boots, and sat on the live conductor and slapped the running rails with my bare hands, engineers, electricians, railway employés, and others who ought to know better, were surprised, and they spoiled the effect of my demonstration by suggesting that I was peculiarly insusceptible to shocks. A pressure of 300 volts was used at first for electric traction, but when afterwards it was taken up and developed by Americans they settled by *experimenta in corporibus vilibus* that a pressure of 500 volts was high enough for economy and not too high for safety.

The chief object of this paper is to record a few experiments and to discuss the conditions under which shocks at 500 volts are devoid of danger. The subject may be divided into three parts: (1) the physiological and electrical conditions; (2) the dangers connected with trolley-wires; and (3) the dangers of third rails of electric railways.

Physiological and electrical conditions.—In dealing with the first part I need but barely allude to physiological matters, but I will refer first to the current, then to resistances, and lastly to pressure. The sensation may be a prick, a pleasant tingle, a hot burning, or a convulsive shock. The sensation does not depend directly on the actual current but on the current density. With four or five square inches (30 square centimetres) of contact between dry metal and bare skin (for example, grasping a trolley-wire) a steady continuous current of one or two milliampères is hardly perceptible.[2] From 3 to 8 are easily supportable, above 10 milliampères is painful, and above 35 almost unendurable. A larger current than 20 milliampères in seldom used for medical applications. Every electrical engineer is familiar with the sharp pricking shock given by a fine wire. In that case the current density is very high, but the current is so small that little else than the tactile nerve-endings in the skin are stimulated. With larger currents and more surface muscular contractions are added to the tactile sensations, especially if the current is at all unsteady. The electrical phenomena of nerve and muscle have been studied by physiologists; they are rather complicated and do not concern the general purpose of this paper. Alternating currents seem to be about four or five times more painful, but the sensation is of a different character. I have no knowledge of the relative danger of alternating and of continuous currents, and no further reference will be made to alternating currents in this paper. It is difficult to make any exact determination of the relation between current density and sensation. More than about 14 milliampères of steady continuous current at the finger-tip, making a poor contact of about one-sixth of a square inch (one square centimetre), is unendurable, but 35 milliampères from boot to boot, nearly the whole of the soles of the feet being in contact, is much less painful. Under prolonged shock the current increases owing to a fall of resistance, but that does not concern accidental shocks.

Passing now to resistances, the resistance from finger-tip to finger-tip on dry metal and under 100 volts is about 20,000 ohms. It varies a little with the volts, decreasing at higher pressures. Two coins nipped in the terminals of an Evershed ohmmeter serve very well for electrodes. This finger-tip resistance is of considerable importance in connexion with accidental light contacts at high pressures. The resistance is almost all at the skin. The thin skin on the inside of the wrist is much more sensitive than that of the palm of the hand. The difference between the resistance from finger to finger of one hand and between one finger of each hand is inappreciable. The resistance from hand to hand when grasping two pieces of dry trolley wire is about 5000 ohms; different individuals vary a good deal, probably owing to the dryness of the skin; I have found it as high as 14,000. The resistance between the body and the earth or an iron rail through the sole of the foot, stocking, and boot, is of considerable importance in connexion with electric railways. I find that the resistance from boot to boot, the boots being dry and without nails, varies from 45,000 to more than 200,000 ohms. The lowest of measurements on 25 different persons made with 500 volts gave 25,000 ohms. Boots worn into holes and wetted by walking on wet pavement gave only 13,000. The values for resistance of the human body given in medical works are of little use for the present purpose, for care is taken as a rule to facilitate the passage of the current. "Under conditions of medical practice, and using moistened electrodes, the resistance of the body, when the skin is well wetted with warm water, is about 2000 or 3000 ohms—that is to say, an electromotive force of 12 volts (eight Leclanché cells) will pass a current of four to six milliampères."[3] Most of the measurements of resistance which I have given were made with from 100 to 500 volts and are calculated from the milliampères which passed. Taking the information which I have already given about the effect produced by various currents it follows that the mere touching of dry metal at 100 volts, finger to finger, gives hardly any sensation, but with a larger contact a shock is felt. At 200 volts a light touch gives an unpleasant prick, but the current through a firm contact is about from 12 to 18 milliampères, which most people can bear without considerable pain, especially if the contact be gradually made and broken. There is no after effect; the sensation is very similar to that of heat. To grasp with bare hands two pieces of metal at 500 volts would give a very painful shock, but a light and quick touch is no worse than the shock from a half-pint Leyden jar, an experience more familiar to schoolboys than to

[1] A paper read before the Institution of Electrical Engineers on Feb. 27th, 1902.

[2] If this paper be read, as I hope it may, by others than electricians it may be well to explain that one ampère of current passes through a resistance of one ohm when the electrical pressure is one volt. One milliampère, or one thousandth of an ampère, passes through a resistance of 1000 ohms when the pressure is one volt, and one milliampère passes when the resistance is 100,000 ohms and the pressure 100 volts, and so on in proportion.

Volts.	Milliampères.	Ohms.
1	1,000	1
1	1	1,000
100	1	100,000
500	5	100,000

[3] Lewis Jones: Medical Electricity, p. 194.

engineers. A 500-volt shock may be described as worse than touching a kettle of boiling water, not so bad as touching a red-hot poker, about the same as touching a soldering iron at working heat, or as when an inexperienced blacksmith's boy picks up a black-hot horseshoe. These shocks are common incidents in the daily work of a careless linesman; nearly all those who are practically engaged in electric traction work receive more shocks than they like, but they agree that they might reduce the number by taking more care. This is an important measure of the severity of such shocks, and perhaps the only one which will be appreciated by those members of the public who do not care to try for themselves. In such brief shocks the muscular sensations probably mask the contact sensations, but a bad 500-volt shock burns the skin.

Cases of fatal accident from 500 volts are so rare that the conditions can only be guessed at. If the skin resistance be reduced by moisture, especially if salt or chemicals be present, and if the contact be large and prolonged, 100 volts may be fatal. While repairing an arc lamp in a steam washing factory at Bradford in 1899 a man is said to have been killed by a shock at 225 volts; a fatal accident occurred in Germany with about 300 volts; but a man may be choked by a crust of bread under exceptional conditions. The death of a man by blood-poisoning arising from a burn caused by a short circuit on the Central London Railway in December, 1900, does not concern us; a death occurred on the Metropolitan Railway in Paris, when a platelayer fell and remained fallen on the third rail of 500 volts. But the case to which so much attention has been drawn and which has caused such a scare is the accident in Pembroke-place, Liverpool. Instead of the present system of well-earthed guard-wires an attempt was made to keep fallen telegraph wires from touching the trolley wire, and the attempt was unsuccessful. Nearly 50 wires fell in a tangle across the street and lay on the trolley wire, which did not break. The passers-by in the street upon whom they fell escaped with a few shocks. It was dark and snowing and a salted slush lay on the street. Two men walked blindly into the wires and were entangled, and, struggling, became entangled the more. The current was not cut off for nearly half-an-hour. Here was a lamentable combination of seven circumstances: (1) the unusual conditions of weather, the snow freezing to the wires as it fell; (2) failure of the wood strip (which is still extensively used on the continent) to act as a guard; (3) the large number of wires, the long span (375 feet), and the tangle in which they fell; (4) the salt slush of snow in the street; (5) the darkness and invisibility of the wires; (6) failure of the police telephone signal service; and (7) the delay of 25 or 30 minutes before the current was cut off. If anyone of these seven causes had been absent it is probable that the fatal results would not have occurred. It is practically impossible that such an accident can occur again in Liverpool, for the telephone wires which crossed the tramways have been either diverted, placed underground, or cabled, at a great expense to the corporation, and a considerable number of the postal telegraph wires have been satisfactorily altered. I am tempted to digress into the question of guard-wiring, but this paper must be confined to shocks, and I hope that the discussion will be similarly restricted.

Dangers connected with trolley wires.—Neither the man in the street nor a man on a car runs any risk of taking 500 volts skin to metal. On several occasions during inspections of tramways when a trolley wire has been within reach from the top of a car I have grasped it with both hands, and with more or less difficulty I have persuaded others to do the same. In each case the weather was fine, the car was dry, and no shock, not even the least sensation, was perceptible. To show that there was no trick I have grasped the hand-rail and flicked the trolley wire with a finger; the shock is trifling. It follows, therefore, that if a live trolley wire fall on a crowded car, although it may give alarming flashes when it touches a hand-rail or tramway rail, the chances of a shock on a fairly dry day are nothing compared to the obvious mechanical injuries which might be occasioned. Trolley wires do fall and trolley wires are very properly excluded from the leading cities of the world—London, Paris, Vienna, New York, Budapest, &c.—but as yet the damage done by the falls has not been electrical. A trolley-wire is an obvious thing: it sometimes springs back in large coils, but it generally falls and lies still or hangs, and it is regarded with a prudent solicitude which this paper is not intended to remove. But on a dry or frosty day anyone with tolerably good boots may fearlessly touch the live end even if he stand on the rail. I would not publish this statement had I not tried the experiment on some dozen persons, the majority being women and children. My son, seven and a half years old, stood on a rail and played with wires, there being 500 volts between rail and wires. The current was less than one-quarter of a milliampère and he felt nothing. His boots were new. A fallen telephone wire is not so obvious. It does not stop the traffic; it is apt to writhe and to coil round a person; should he fall on the rails the short circuit might severely burn him. With wet boots and wet ground the conditions are different. Standing on damp granite setts in rather damp boots, and grasping a trolley-wire, I found that the current was 15 milliampères. The sensation was by no means unendurable; brief touches gave sharp pricks. Standing on a rail increased the current to 20 milliampères. With old boots worn into holes, and after walking a couple of miles on wet pavement, standing on a rail and grasping a trolley-wire gave 35 milliampères. I took this for several seconds, and I should be sorry to take more. I broke contact cautiously by raising the boot on one edge. There was no after effect; the sensation was merely that of heat, as though the trolley-wire were hot. Spilling half a bucketful of water on the ground increased the shock intolerably. I am inclined to attribute this to the better contact between boot and earth rather than to decreased resistance of the earth (in this case granite setts). Three others tried the experiments with me, and as far as we are able to compare experiences I am satisfied that I am not relatively insusceptible to shocks.

Besides the fall of trolley-wires, either on a car or in the street, there are roundabout and unlikely ways in which shocks may be conveyed to unsuspecting persons; for example, a linesman on a ladder, and somehow making a good earth, holding a wire while its broken end or a careless sag touches a trolley-wire; but the discussion of such accidents belongs to the subject of guard-wires.

Dangers of third rails of electric railways.—The first time that I stepped on the live rail of a third-rail railway I clutched the engineer lest my legs should give way under the shock, but I felt nothing. I went to where some water stood half an inch deep on a cement floor and "marked time" for two and a half minutes. With caution I stepped on to the live rail and then on to one of the running rails, felt nothing, and then stooped down and touched the running rail while standing with both feet on the running rail. I felt a slight tingle, which my subsequent experiments lead me to think was produced by a current of about six milliampères. To sit on the live rail without touching the running rails was easy, and I cautiously flicked the running rail, then touched it, and then laid my hands flat on it without the slightest sensation. In the light of the figures which I have given this is not at all surprising, and I have invited several others to try the experiment, with the same negative result. Of course, the result depends on the dryness of the clothes. The resistance of dry cloth is very high. After walking in the wet for about an hour with sound but not thick shoes I stepped on 500 volt rails and felt nothing, but on touching with the finger I received a smart shock, perhaps 30 milliampères. I have already stated that with old worn-out and wet boots the resistance was only 13,000 ohms. This was found with only 400 volts. Standing on rails in my laboratory, the rails being connected to the outers of the Westminster Company, I could just support the current of about 30 milliampères. The sensation was almost precisely like that of standing on hot steam-pipes. It was easy to turn it on gradually by beginning and ending with the edge of the sole. The shock would, of course, be very alarming to anyone who was not expecting it. There was no perceptible after-effect. Ordinary nails in the heels of boots make no difference, but hob-nails give uncertain pricking stings which are rather painful, but under no circumstances need they be sustained. Until I tried these experiments I must confess that I did not enjoy the walks which I have sometimes taken in "tube" railways during inspections by the light of oil lanterns, but now, with dry boots, I take no care whatever. It is very desirable that the live rails of third-rail railways should be guarded by planks to prevent short circuits by tools, &c., and to make it less easy for a person falling on the rails to make contact with bare skin. While experience has shown that a person so falling may receive a serious and even fatal shock, this can only occur if he make contact with both a live rail and a running rail with bare skin, or thoroughly wetted

clothes, and if he lie there for a time. As to the length of this time we know nothing, but so long as the fall has not injured the person so that he cannot rise it is very improbable that the shock would be maintained. A platelayer in the open-yard of the Waterloo and City Railway once accidentally sat on the third rail and made the circuit through his feet on wet ground; he shouted and was pulled off by his mates; the contraction of the muscles prevented him from rising. He could probably have rolled over and so released himself. He was back at work again in a few minutes.

Numerous accidents to horses show conclusively that these animals are peculiarly susceptible to electric shocks. Electrical conditions under which a human being would receive an unpleasant shock of from 10 to 15 milliampères cause instant death to a horse, and it appears that horses are terrified under conditions where a human being would feel no shock. But it must not be concluded that a given current produces more effect on a horse than on a man. A horse makes excellent contact with its shoes, and these are well connected by nails to its body. It is probable that the resistance is very small and the current very large; but even making this allowance the horse appears to be more susceptible.

Conclusion.—The dangers of electric shocks at 500 volts have been much misunderstood, greatly exaggerated, and little investigated. The pressure of 500 volts has been deliberately chosen by electrical engineers because it is not dangerous under ordinary conditions. The conditions under which serious shocks are not produced by 500 volts are discussed in the paper, and it is safe to assume that all shocks more serious than those which are recorded are dangerous. Dry wood and dry boots without large nails offer so great resistance to electric current that it is perfectly safe to touch a trolley-wire while standing on a dry tram-car, or even while standing on the ground or on the rails. Wet weather makes a considerable difference, but boots must be very wet to allow enough current to pass to produce a severe shock. Men engaged in electric traction work receive many slight electric shocks at 500 volts, and they might avoid most of them by taking more care. Dry clothing offers so great a resistance that no shock can be transmitted through it. The peculiar conditions under which shocks at 500 volts have caused death are discussed and are shown to be very exceptional. Experiments have been made on some 30 persons, including 12 women and six children, and it is proposed to make other experiments. With sound dry boots hardly anybody can feel a shock when standing on the live rail of an electric railway with one foot and a running rail with the other. With damp or wet boots a shock is felt, but neither the sensation nor the degree of wetness of the boots can be measured accurately. It is not possible to receive a shock by sitting or lying on a live rail so long as the clothes are dry and continuous—that is to say, so long as the live metal is not touched by the bare skin.

A CRITICISM ON THE VISUAL TEST AS USED IN THE BRITISH ARMY.

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SEEING the importance which is attached to good shooting under the altered conditions of modern long-range rifle-fire it becomes an important question whether the standard of vision at present in vogue is a sufficiently high one. Let us then examine the means adopted for fixing a standard and endeavour to see in what respect it fails.

The visual power of the recruit is tested by means of Professor Longmore's "test dots," which consist of black dots one-fifth of an inch in diameter on a white background, so that by means of a covering card many variations in the number and position of the dots can be obtained. This is held up at a distance of 10 feet from the recruit who is asked to count the number of dots exposed. The black dots as seen at 10 feet are supposed to bear the same relation to a bull's-eye three feet in diameter as seen at 600 yards. The 10 feet being a convenient distance was first taken and then the proportionate size of the black dot found by a process of simple calculation—viz.: as 600 yards : three feet :: 10 feet : one fifth of an inch.

Now let us see what relation this standard of vision bears to normal vision—in other words, what amount of bad sight does it allow a recruit to have in the service. According to Volkmann, the minimum visual angle at which an object can be clearly discerned is one of one minute, and the distance at which such ought to be seen can be easily calculated when we know the size of the object. The size of each dot is one-fifth of an inch, and therefore with a normal acuteness of vision each dot ought to be seen at a distance of 57 feet; but the distance required by the regulations is only 10 feet, or, roughly speaking, a fifth of what good vision ought to consist of. If the other medical requirements were taken on a similar basis the standard of health and strength would be of a very low order. This lowness of requisite visual ability is even further reduced by the fact that for militia, volunteers, and departmental corps the dots need only be held five feet away.

Such a seemingly low standard would, one might think, admit into the service men with most inferior vision, without the additional opportunities which such a rough-and-ready method presents for "scraping through." A few statistics taken from notes of over 1000 cases seen by me whilst stationed in Aldershot may show what types do pass the test, the percentages due to "scraping through" being ignored on account of the obvious difficulty of discriminating between them. The state of the refraction was in all cases done under a mydriatic and the following is a fairly accurate summary. Out of every 100, 82 were found to be hypermetropic and 18 to be myopic. Of the hypermetropes 16 per cent. were found to be over 5 D. and below 10 D. No case of over 11 D. was met with. Of the myopes 2½ per cent. were over 5 D. and under 10 D., and 1 per cent. were over 10 D. and under 15 D. No case of over 15 D. was met with. Of mixed astigmatism the proportion was 4 per cent., and of antimetropia the proportion was 2½ per cent. Thus we see that, roughly speaking, 25 per cent. of the men who complained of inability to see to shoot were justified in their complaints and had been admitted into the service by either too lax a test or by fraud. The proportion is, of course, misleading unless one bears in mind that the cases examined were only those who had made some complaint about their vision, but that such errors of refraction can pass the test dot is plainly shown.

This leads us to ask, In what particular respect does the test dot fail? Turning to our figures again we note that it fails to detect first of all fairly high degrees of hypermetropia, secondly mixed astigmatism, and lastly cases of antimetropia and myopia of a degree above 5 D. For practical purposes all cases of myopia of 5 D. or more can be considered as having passed by "unfair or hurried tests." It is different though, in cases of mixed, compound, or simple astigmatism, as unless the degree be very marked but little difficulty is experienced in counting fairly correctly the exposed dots if not too many be shown and it be done in a good light. Again, in cases of high degrees of hypermetropia it signally fails because at the age (18 years) at which the recruit is generally examined nearly all the hypermetropia is latent. It is in this respect alone that for practical purposes the dots chiefly fail. For example, take a recruit with hypermetropia of 8 D., aged 18 years; his accommodation at this age is 10 D., so it is all latent, but test him again in a few years, or at the end of a long march, when his ciliary muscle is weakened, and the hypermetropia becomes manifest, and the result will be very different.

How are we to remedy this? If we move the dots further away he will still be able to read them, and we would be excluding myopes of a low degree of about 2 D. who are of even more use. If we bring the dots nearer we admit myopes of a too high degree and may even then admit cases of hypermetropia of over 5 D., which is too high to be of value. If we adopt the plan of finding out the smallest reading type which can be clearly defined we should then exclude the patient with high degrees of latent hypermetropia and in conjunction with the test dots exclude the high myope who could easily pass the reading test. The test dot fails also to diagnose absence of binocular vision, which is shown by the admittance of men with alternating strabismus; but if the recruiting officer were to examine the external appearance of the eyes such would not happen, and, moreover, failure to detect corneal opacities and similar visual defects would not be so often passed over as is so commonly done.

What, then, are the advantages possessed by the test dots

over Snellen's test letters? They are as follows:—1. The ease and simplicity of the test, especially for men who are unable to read. 2. The reliability with which the test can be carried out by men not specially versed in ophthalmic work. 3. The small compass both of the test itself and the space required in which to use it. 4. By its very breadth of lowness of the visual standard combined with yet a certain limitation causing it to give every chance of obtaining recruits with vision which, though not perfect, is yet capable of being trained to the different branches of the service according to the ability to shoot.

We have seen that the test dots admit men with a certain amount of astigmatism. This varies in degree according to the measure of the axis of the meridian with which they have taught themselves to see best. For example, to take five privates: (1) R.E. $+\frac{+1\cdot75}{+3}$, L.E. $+\frac{+1\cdot25}{+1\cdot25}$; (2) R.E. $+\frac{+3\cdot5}{-1}$, L.E. $+\frac{+1}{+1}$; (3) R.E. $+\frac{+6}{+2\cdot5}$, L.E. $+\frac{+2}{+2}$; (4) R.E. $+\frac{+2\cdot25}{+1\cdot5}$, L.E. $+\frac{+1\cdot5}{+5}$; and (5) R.E. $+\frac{+4}{+2}$, L.E. $+\frac{+3}{+2\cdot5}$. All the above could count the dots fairly well with the right eye and quite easily with the left and had therefore passed, but no one would deem their right eye as a good "shooting eye" or would have passed them if they had been tested with Snellen's test type.

Hence the question arises, What degree of astigmatism ought to disqualify for further service? and this the ophthalmic surgeon frequently finds that he has to answer when consulted by astigmatic patients who are sent to him on account of being unable to shoot correctly. In coming to an opinion each case must naturally be judged on its own merits, due consideration being given to the age of the patient, but as a general rule the amount of hypermetropia or myopia which exists in addition to the astigmatism is the chief guide to aid one in forming a definite opinion. As a rule, high degrees of astigmatism do not pass the test dots, and it is chiefly those at the back of which lie larger errors of hypermetropia or myopia which subsequently cause trouble to the soldier. A bull's-eye, it must be remembered, is not a rectangular figure, and if to an astigmatic soldier the right and left edges appear blurred the top and bottom will have fairly sharp edges, and from these he can take his bearings. It is true that the rifle-sights are linear figures, but here, again, it is his inability, when a high degree of hypermetropia exists, which prevents him focussing them properly, the astigmatism only unless excessive aggravating the condition. Thus a man with H. 5 D. ○ H.A. 1 D. is less able to shoot as well as one with H. 1 D. ○ H.A. 2 D., though neither would be considered as ever likely to become crack shots, yet the latter in one axis would be the more likely to have accurate vision, whilst it would not exist in either of the meridians in the former.

Seeing, therefore, that the standard of vision required by the Army Regulations is, roughly speaking, one-fifth below that of perfect vision—we must not forget the fact that very few persons have really perfect eyesight—is it incumbent upon us to raise the standard in view of the importance now attached to rifle-shooting, or should we, on the other hand, improve the vision by artificial means (that is, by spectacles) and thus have a wider field to draw upon for recruiting purposes? The best answer is given by Professor Longmore in his "Manual of Instructions ..... for testing ..... Vision of Recruits." He says: "At first, when the introduction of long-range rifles with graduated aims in place of smooth-bore muskets made it necessary to pay particular attention to the range and acuteness of vision possessed by recruits, efforts were made to obtain recruits with full range and perfect acuteness of vision. But it was found impossible to obtain recruits possessing such qualities of vision in sufficient numbers, and it therefore became necessary to relax the requirements in these respects. ..... In a country in which voluntary enlistment and highly paid wages are the rule it is the object not to accept any who are not fully qualified for the performance of the duties which will devolve on them in the army. And when only one rule exists for all alike evidently the standard for those parts of the army in which a high degree of visual acuteness is a necessity should be chiefly taken into account in framing rules on the subject, in order that the necessary degree of military efficiency may be attained." And in regard to the wearing of glasses he says: "Special difficulties would be experienced if glasses were allowed to be worn in the English army as they appear to be in some parts of the troops of continental armies. These difficulties particularly relate to the want of means of replacing them when injured or broken in many of the distant stations in which English troops are habitually employed. ..... If the glasses were damaged or broken while troops were on active service there would be almost insuperable difficulties in replacing them, and this would just be the time when they would be most urgently required. Moreover, though spectacles may be perfect, when dust, rain, condensed moisture, or other circumstances interfere with the transparency and therefore with their utility, accoutred infantry soldiers carrying rifles, or mounted troopers, are too fettered to be in a position to remove these impediments as they occur, and the spectacles would cease to be of any advantage."

These opinions of Professor Longmore carry the same weight to-day as they did in 1875 when they were written, but seeing that the test dots admit into the service a few who are unfit to shoot well unless provided with glasses the important question arises, Are we to remove such from the army or retain them in the service and provide them with glasses? The plan I adopt under such circumstances seems to me to be the best way out of the difficulty. If the disability be not such as totally to unfit the soldier and he has had a fairly long training in the service—this point being the one to which chief attention is paid—he is given a prescription for glasses and sent back to his regiment with advice to get permission to be allowed to use them when shooting or at other suitable occasions. If his commanding officer values the soldier this permission is generally readily granted and suitable duties are found for him; on the other hand, should his regiment not consider him worth retaining he is returned to hospital and then discharged. In all cases, too, in men who have but recently joined the service in whom visual defects are found of such a nature as will prevent them ever becoming efficient shots it is always considered advisable to recommend their discharge as being unlikely ever to make efficient soldiers.

It will be seen from the above that, on the whole, the present means of testing the vision for admittance into the army is, though a low standard, yet sufficiently high for all practical purposes, if properly carried out; also that a small percentage of men unlikely ever to become efficient escape its test, and that such can subsequently be detected and got rid of by being referred to an ophthalmic surgeon.

Aldershot.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF PRIMARY HÆMORRHAGE INTO THE FOURTH VENTRICLE.

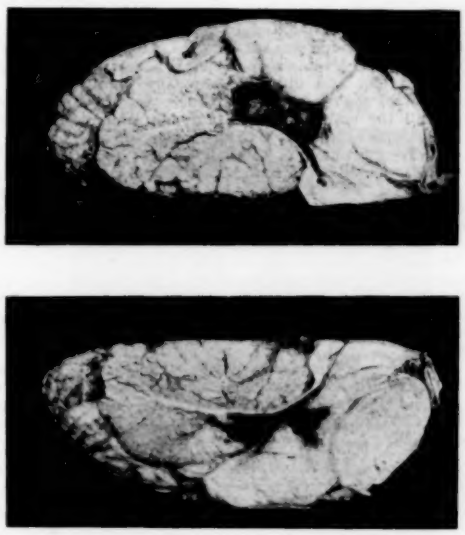
BY HOWARD W. REYNOLDS, M.B., B.SC. LOND.,
HOUSE SURGEON TO THE RAMSGATE GENERAL HOSPITAL.

THE case detailed below is chiefly of interest from a pathological point of view and on account of the comparative rarity of the condition.

The patient was a woman 35 years of age, who was admitted to the Ramsgate General Hospital on Jan. 9th, 1901, suffering from Bright's disease, with hydrothorax and œdema of the lungs. On Feb. 4th she was violently sick in the evening, and on the next day, at 3 P.M., she suddenly developed bilateral paralysis of the lips, tongue, and pharynx, so that she could not articulate properly, protrude her tongue, or swallow except with difficulty, while saliva dribbled from the mouth. There was no headache or any other premonitory symptom except perhaps the vomiting and consciousness was perfect throughout. There was no paralysis of the limbs or ocular muscles. The most marked feature was the defect of articulation which really drew attention to the condition, the defect being inability to pronounce the labials; thus, she pronounced "grapes" as "grace," and "sponge" as "sunge." The temperature rose from 97·2° F. in the morning to 102·6° in the afternoon, and the pulse, which had been slow, rose to 120. These symptoms remained the same until Feb. 7th at 11 A.M., 44 hours from the first symptom, when respiration suddenly ceased, the heart beating for some minutes afterwards.

Necropsy.—At the post-mortem examination the right

kidney was in the "large white" condition, the left being atrophied. The pleural cavities contained fluid and the lungs were œdematous. The left ventricle was hypertrophied, but the heart was otherwise normal. The brain was found to be healthy except for a hæmorrhage into the fourth ventricle which is shown in the accompanying reproduction of a photograph taken of the medulla, pons, and



Sagittal section of the medulla, pons, and cerebellum.

cerebellum bisected and laid open. It will be seen that the Sylvian iter is free from clot, as were the third and lateral ventricles, showing the hæmorrhage to be primarily of the fourth ventricle. It will also be seen that the blood has ploughed its way into the posterior part of the pons and medulla, where it would involve the nuclei of the cranial nerves, but not the pyramidal tracts. Judging from the symptoms, the nuclei affected were those of the seventh, tenth, and twelfth, the sixth being unaffected. The sudden death may perhaps have been due to a second hæmorrhage involving the respiratory centre.

My thanks are due to Dr. G. B. Courtney, under whose care the patient was, for permission to record the case.

Ramsgate.

PRELIMINARY COMMUNICATION ON THE CAUSATION OF THE SO-CALLED "PERIPHERAL REFLEX SECRETION" OF THE PANCREAS.[1]

BY W. M. BAYLISS, D.Sc. OXON.,

AND

ERNEST H. STARLING, M.D. LOND., F.R.S.,

JODRELL PROFESSOR OF PHYSIOLOGY, UNIVERSITY COLLEGE, LONDON, ETC.

(*From the Physiological Laboratory, University College, London.*)

Introduction.—It has long been known that the introduction of acid into the duodenum causes a flow of pancreatic juice, and it has been shown recently by Popielski and by Wertheimer and Le Page that this flow still occurs after nervous isolation of the duodenum and the pancreas. Wertheimer also mentions that the flow can be excited by injection of acid into the jejunum, but not by introduction of acid into the lower part of the ileum. These authors conclude that the secretion is a local reflex, the centres being situated in the scattered ganglia of the pancreas, or, in the case of the jejunum, in the ganglia of the solar plexus (Wertheimer).

[1] A paper read before the Royal Society on Jan. 23rd, 1902.

Results.—The secretion excited by the introduction of acid into the jejunum cannot be reflex, since it occurs after extirpation of the solar plexus and destruction of all the nervous filaments passing to the isolated loop of jejunum. It also occurs after intravenous injection of 0·01 gramme of atropin sulphate. It must therefore be due to direct excitation of the gland cells by a substance or substances conveyed to the gland from the bowel by the blood stream.

The exciting substance is not acid. Wertheimer has shown that injection of 0·4 per cent. HCl into the blood stream has no excitatory influence on the pancreas. The secretion must therefore be due to some substance produced in the intestinal mucous membrane under the influence of the acid and carried thence by the blood stream to the gland. This conclusion was at once confirmed by experiment.

When the mucous membrane of the jejunum or duodenum is exposed to the action of 0·4 per cent. HCl a body is produced which, when injected in minimal doses into the blood stream, produces a copious secretion of pancreatic juice. This body, which for the present we may term *secretin*, is associated with another body with a pronounced lowering effect on the blood-pressure. The two bodies are not identical, since acid extracts of the lower end of the ileum produce the pressure-lowering effect, but have no excitatory influence on the pancreas. The action of the acid is to split off the secretin from a precursor, *prosecretin*, which is present in relatively large amounts in the duodenal mucous membrane, gradually diminishing as we descend the intestine. The prosecretin is apparently slightly soluble in 0·9 per cent. NaCl solution. It has no influence on the pancreatic secretion. The secretin may also be split off from its precursor by boiling this with 0·9 per cent. saline. The acid extract may be boiled, neutralised, and filtered without losing its activity. The active filtrate contains some primary albumoses and gelatin, which may be precipitated by addition of large excess of alcohol and ether, and have no action on the pancreas. The alcoholic ethereal filtrate contains only a small amount of organic material, but on evaporating to dryness and taking up the residue with water the solution obtained is as active as the original infusion.

These results indicate that secretin is probably a body of very definite composition and of small molecular weight. Dr. Osborne is at present engaged in an investigation of its chemical characters and identity.

A chemical sympathy between different organs has often been assumed, as, e.g., between the uterus and the mammary glands, but we believe that this is the first case in which direct experimental proof has been afforded of such a relationship. It is probable, however, that this acid-duodenum-pancreas mechanism will prove to be but one of a whole class of similar mechanisms, the study of which should considerably increase our control of the various chemical functions of the body.

In the light of the results here noted a revision of Pawlow's experiments is necessary. In none of these latter was a possible expulsion of acid from the stomach into the duodenum excluded. We have so far failed to obtain a secretory effect on the pancreas by stimulation of the vagi and are therefore rather sceptical of the alleged presence in these nerves of secreto-motor fibres to the pancreas. We are continuing our experiments on this and kindred points.

A CASE OF IMPERFORATE ANUS.

BY B. CROSSFIELD STEVENS, M.D., M.S. DURH., F.R.C.S. EDIN.

I WAS lately sent for by a midwife to see a newly-born female child who was not expected to survive. The midwife had given the child a dose of castor oil because of the rattling in the throat; after she had done this she discovered that the bowel had no apparent opening. When I saw the child, who was undersized, she was cyanosed; she had evidently inhaled a quantity of mucus and discharge from the maternal passages during birth. On examination the only indication that there was of an anus or proctodeum was a small epiblastic mound. Knowing that the child had been given castor oil I decided to operate at once, so with the help of a fellow practitioner, but in a "slummy" room with a bad light, I made an incision into the perineum and hunted for the rectum which I failed to find. I was next thinking of doing

a colostomy when during straining under the anæsthetic I noticed a little meconium exuding from the vulva. This was the first clue to the real state of affairs—i.e., a persistent cloaca between the rectum and the vagina. I then passed a probe into the vagina which went horizontally backwards about one-third of an inch above the perineum and then upwards into the rectum. After this a pair of pressure forceps was passed through the vagina into the bowel and the rectal walls were pushed before it into the opening which I had made in the perineum. This was opened on the point of the forceps and was sewn with continuous catgut sutures to the anal skin. I could now pass a probe from the perineum into the bowel, also from the vagina into the bowel; meconium came at once through the new anus, and the first stage of the operation was completed. On the second day a little packing was put in the vagina and all the meconium then passed per anum. The child was still very cyanosed and a quantity of mucus was expressed from the bronchi. On the third day the wound was perfectly healthy and meconium was passing per anum, but the child had not been given any nourishment and was cold and cyanosed. This was due partly to the inability of the child to swallow, indifference on the part of the mother, and lack of attention on the part of the friends. On the fourth day the child died from, as I thought, septic-aspiration-broncho-pneumonia and inanition.

I think that from a surgical point of view the case is one of interest. The reason of failure to find the rectum at first was because it was drawn abnormally forward and was ill-developed. The lesson which the case teaches is that in a case of imperforate anus the medical attendant should always examine for a fistula between the rectum and the genito-urinary organs.

Swinton, Rotherham.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum propriâs collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

WESTMINSTER HOSPITAL.

A CASE OF AMPUTATION THROUGH THE THIGH IN A CHRONIC DIABETIC WHO HAD NECROSIS OF THE FOOT, FOLLOWED BY A DISAPPEARANCE OF THE GLYCOSURIA.

(Under the care of Mr. W. G. SPENCER.)

THE desirability of operating in cases of diabetes has been doubted. For instance, Erichsen wrote: "Saccharine diabetes is another constitutional condition which absolutely forbids all operations except those required for the immediate preservation of life."[1] This is probably true of the severe acute cases, but in cases of chronic diabetes operations, such as amputation of a gangrenous limb, may be performed with safety, as Mr. R. J. Godlee showed in a paper read before the Royal Medical and Chirurgical Society.[2] As in the case recorded below, the sugar may disappear from the urine when the diseased limb has been removed; this has already been shown by Mr. W. G. Spencer.[3]

A woman, aged 61 years, was admitted into the Westminster Hospital on Nov. 8th, 1901, and left on March 8th, 1902. She weighed about 12 stones; 20 years ago her weight was 19 stones and seven years ago 15 stones. It was some 12 years ago that she first felt a constant thirst, drinking one or two gallons daily; for the last five years the thirst had not been so marked. About Oct. 1st she first noticed a small crack at the side of the nail of the second toe of the right foot whence inflammation spread to the foot and an escape of blood and pus from several openings followed. The foot below the malleoli was much swollen, there were several sinuses, and extensive necrosis was found on probing. Whilst the rest of the patient's circulation did not present any abnormality no pulsation could be detected in the right leg below Scarpa's triangle. For five weeks the patient was treated medically by a special diet and by codeia and the foot was frequently dressed. The necrosis extended but the temperature remained normal. On two days (Nov. 28th and Dec. 13th) no sugar was present in the urine, the patient feeling depressed and being drowsy.

On Dec. 17th amputation of the right limb just below the middle of the thigh was carried out. The superficial femoral artery at this level was completely thrombosed by recent coloured clot and did not show any pulsation after the removal of the tourniquet, but there was free hæmorrhage from all the branches of the profunda artery. A dissection of the limb exposed a general necrosis of the bones of the foot with infiltration of the soft parts by suppuration. The popliteal and the three arteries of the leg were obliterated by sclerosis and thrombi. A microscopical examination showed chronic endarteritis. The thickened intima was much tunnelled by blood channels with calcification of the media. A limited sloughing of the skin-flap occurred along the previous line of the superficial femoral artery and its anastomotic branch, and sugar was present in the urine until Jan. 10th, after which none was found. The patient left the hospital on March 8th. A small granulation patch on the stump still remained to heal, otherwise she felt and appeared in good health.

The accompanying table shows the daily average results of the examination of the urine in the three periods named. The specific gravity and the amount of sugar showed considerable daily variations; the quantity could not often be completely measured. Albumin was never present.

Table showing the Results of the Examinations of the Urine.

—	Before operation—Nov. 8th to Dec. 17th.	Shortly after amputation—Dec. 19th to Jan. 10th.	Convalescence—Jan. 14th to March 7th.
Quantity	47 ounces.	43 ounces.	35 ounces.
Specific gravity ...	1023	1027	1015
Sugar	1·6 ounces.	1·13 ounces.	None.

Remarks by Mr. SPENCER.—In the above case arterio-sclerosis and thrombosis were well marked, indicating the necessity of a high amputation, so that the stump might depend for its blood-supply directly upon the branches of the deep femoral artery, the limited sloughing of the flap being connected with the thrombosis of the superficial femoral artery above the level of the amputation. It has been thought that perforating ulcers are the result of a previous neuritis in diabetic cases, but an examination of the nerves of the amputated limb did not support this view. The history that the patient gave was that of septic extension to the foot from a small crack on the toe, rather than of a preliminary perforating ulcer. The arterial changes were as extensive as those met with in cases of gangrene. That this did not happen may be put down to the otherwise good state of the patient's circulation.

As regards the disappearance of the glycosuria (it would be going too far to anticipate the same of the chronic diabetes) a similar result happened in a case in which I amputated the arm as soon as the patient was convalescent. This disappearance of the glycosuria was doubtless aided by the special diet and the codeia, but the medical measures showed their efficacy only after the removal of the incubus caused by the diseased foot.

For the notes and for the many estimations of the sugar I am indebted to Mr. E. C. Johnson, dresser.

NORTHAMPTON GENERAL INFIRMARY.

A CASE OF PSORIASIS RUPIOIDES.

(Under the care of Dr. F. BUSZARD.)

IN the more severe forms of psoriasis the treatment often requires to be varied until some medicament is found which is effective. In the case recorded below alkaline baths rapidly removed all signs of disease, though many other

[1] Science and Art of Surgery, ninth edition, p. 7.
[2] THE LANCET, Oct. 29th, 1892, p. 934.
[3] THE LANCET, June 18th, 1892, p. 1364.

forms of treatment had been employed in vain. It is curious that antisyphilitic treatment was useless, for both mercury and iodide of potassium are often of value in psoriasis. Chrysarobin ointment not very rarely requires to be of a greater strength than that used in this case in order to remove the disease. For the notes of the case we are indebted to Dr. W. Bertram Watson, late house physician.

A youth, aged 19 years, was, on Feb. 25th, 1901, admitted to the Northampton General Infirmary suffering from an extensive eruption of the skin. The rash had first appeared on the right arm in June, 1900, and by August had become general. It was irritable for the first two or three weeks

FIG. 1

Showing eruption on the extensor surface of the elbow.

and "very scurfy." He had been in good health all the time and had never before suffered from any disease of the skin. No evidence of either congenital or acquired syphilis could be obtained. The accompanying illustrations, reproduced from photographs which were taken on admission, give some idea of the distribution and character of the eruption. It was symmetrical and general, affecting all parts of the body except the hands and feet. It was most marked on the extensor surfaces of the elbows and the flexor surfaces of the knees. (Figs. 1 and 2.) On the trunk, where the eruption was discrete, it consisted of rounded patches from half an inch to one inch in diameter, covered with crust from a quarter to half an inch in depth. The patches were wider at the base than at the apex, thus presenting the typical conical stratified limpet-shell appearance which is so characteristic of rupia. The crusts themselves consisted of epithelial scales and dried purulent matter. The surface beneath the crusts was hyperæmic and moist, and in the case of two or three patches was ulcerated. On the arms the eruption extended on the extensor surface from the wrist to the acromion process, there being no intervening areas of healthy skin. The eruption in this situation consisted of dense horny scales heaped up to a depth of from one-eighth to a quarter of an inch. On removal of these dirty-white scales the base was hyperæmic and moist but not ulcerated The scales were piled up to the same extent on the flexor surfaces of the knees, and on the removal of the scales the same hyperæmic appearance was observed, but no ulceration. The scalp was covered with dry dirty scales, but not to any such extent as in other parts of the body.

One of the most interesting features of the case was the result of treatment. As some of the lesions so closely resembled rupia (although there was nothing in the history to point to the eruption being of a specific nature) antisyphilitic remedies were tried for some weeks internally but without producing any effect. Arsenic was next exhibited, in the form of Fowler's solution, three drops thrice daily after food, but without result; and the same must be said for the internal administration of thyroid extract. Local treatment, which is of such importance in the treatment of psoriasis, was given an extensive trial. The scales were first removed by means of hot water and soft soap, poultices, &c. As the process was not intense at the commencement of treatment, but inclined to be chronic, stimulating remedies were used. Chrysarobin was applied in the form of an ointment (15 grains to one ounce at first and afterwards increased to 30 grains to one ounce) to the arms and legs, and was given a trial of seven weeks, at the end of which time no progress could be reported. Among other ointments tried may be mentioned cream of zinc (one ounce of olive oil, one ounce of oxide of zinc, one ounce of lime water, and two drachms of lanolin), compound sulphur ointment, and compound tar ointment.

On July 12th, after a period of active treatment in the hospital extending over 19 weeks, the condition was practically the same as on admission. If treatment directed to the removal of scabs was discontinued, even for a short time, the arms and legs soon scaled over again. Alkaline baths were then tried. The patient was soaked for half an hour every day in a bath of water at a temperature of from 95° to 100° F. in which four ounces of bicarbonate of soda had been dissolved to about 30 gallons of water. After coming out of the bath he was not dried but glycerine was well rubbed in for a quarter of an hour or 20 minutes, after which he was dusted with zinc oxide powder. Immediately after this treatment he went to bed so as to avoid risk of cold. The result of this treatment was remarkable. In the course of three or four days there was no

FIG. 2.

Showing eruption on the flexor surfaces of the knees.

further tendency to scale, and at the end of a fortnight the whole eruption had completely disappeared, except for a few brown stains on the abdomen, arms, and legs, marking the position of the patches. There are also two or three scars on the abdomen to be seen, due no doubt to the ulcerative process (already referred to) which occurred in the case of a few of the patches.

Remarks by Dr. WATSON.—The above case is that of an unusual form of psoriasis, similar to those first described by Dr. McCall Anderson under the name of "psoriasis rupioides." I am indebted to the courtesy of Dr. Buszard for permission to publish the case.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

The Pathology of Diabetes.—Effect of Suprarenal Extract on the Pulmonary Vessels.—Changes in the Nervous System following Removal of the Thyroid.—Rôle of the Liver and Spleen in the Destruction of Blood Corpuscles.

A MEETING of the Section of Experimental Pathology of this society was held by the courtesy of the managers at the Laboratory of the Royal Colleges of Physicians of London and Surgeons of England on March 18th, Mr. W. WATSON CHEYNE, the President, being in the chair.

Dr. F. W. PAVY, Dr. T. G. BRODIE, and Mr. RAYMOND L. SIAU communicated the results of their further experiments into the Pathology of the Glycosuria which was produced when Phloridzin was injected into the Renal Artery. Their previous experiments consisted in the perfusion of an excised kidney and a repetition of Zunt's experiment—viz., the injection of phloridzin into the renal artery, which resulted in the appearance of sugar in the urine, phloridzin glycosuria. Although these experiments supported, as far as they went, the view that the eliminated sugar was produced in the kidney, yet they did not lead to anything absolutely conclusive. The new line of research that they now pursued consisted of the removal in the anæsthetised animal of all the abdominal viscera with the exception of the kidneys. In the operation the liver was removed by ligaturing the bases of the lobes one by one and subsequently excising them. This operation was capable of being performed practically without loss of blood and without any marked immediate influence upon the animal. The effect of the operation upon the state of the blood was to lead to a gradual fall in the amount of sugar from the little over 1 per 1000, approximately the normal amount present at starting, to 0·5 or 0·6 per 1000, a point which was reached in about one hour and below which no essential reduction had been found to occur during a further period of two hours. After the injection of phloridzin in such an animal precisely the same kind of fall in the sugar in the blood was observed and the amount of the sugar eliminated rendered it quite impossible that the sugar contained in the blood could be its source, thus demonstrating the insufficiency of von Mering's theory of the mechanism of the glycosuria. The conclusion arrived at by the authors was that the renal epithelium was the essential factor in the production of phloridzin glycosuria. In both pancreatic diabetes and phloridzin glycosuria there was a parallelism between the sugar and nitrogen eliminations, showing that the sugar was derived from proteid katabolism, but various facts pointed to the sugar formation occurring in the latter case solely in the kidney and in the former in the general system. It seemed probable that under the influence of phloridzin the renal cells acquired the power of katabolising proteid with the liberation of dextrose in a manner that might be compared with the production of lactose in the mammary gland from proteid matter by the action of the cells of that gland.

Dr. BRODIE and Dr. W. E. DIXON demonstrated experiments in the Effects of Suprarenal Extract upon the Pulmonary Circulation, showing that the main effect of moderate doses of this substance was to dilate the pulmonary vessels, although it was known to constrict the vessels in other parts of the body. These were of interest as bearing on the question whether suprarenal extract could act as a hæmostatic in cases of pulmonary hæmorrhage.

Mr. WALTER EDMUNDS made a communication on the Pathological Effects produced on the Central Nervous System by Thyroid Excision in Whole or in Part and by Thyroid Feeding. The observations were based on 12 experiments, three on monkeys and nine on dogs. Of the monkeys one was subjected to total excision of the thyroid and parathyroids, from which the animal died in 112 days. The other two monkeys were fed with very large doses of a thyroid preparation; one died in seven days and the other in 12 days. Of the nine dogs three were subjected to primary total excision of the thyroid and parathyroids; they all had severe symptoms and died (or were killed) in three, six, or 12 days. One was subjected to a partial excision of the thyroid which was followed by chronic symptoms, from which it died in 329 days. Two others also underwent partial excision of the thyroid, but in addition steps were taken to paralyse the secretory function of the thyroid left; these two dogs died in 242 and 271 days respectively. In three dogs similar operations were performed, but were followed by operations completing the excision of the thyroid and parathyroids. In all cases pathological changes were found, but they varied much in degree; they were most marked in the thyroid poisoning experiments. The changes consisted in alterations in the pyramidal cells, large and small, which showed chromatolysis, swelling of the cell body, swelling of the nucleus, extrusion of the nucleus, and sometimes total destruction of the cell body, leaving practically a free nucleus.

Dr. W. BAIN described experiments which he had performed to ascertain the Rôle of the Liver and Spleen in the Destruction of Blood Corpuscles. He perfused defibrinated blood through these organs for periods varying from one to three hours. He took samples both before and after perfusion and the following points were determined. The hæmoglobin was estimated quantitatively, counts were taken of the red and white blood corpuscles, the hæmoglobin dissolved in the serum was estimated, the volume of corpuscles was ascertained, and the specific gravity of the blood was determined. Dr. Bain found that the liver destroyed certain red cells—viz., those which were poor in hæmoglobin—and consequently the relative value of the corpuscle was increased after perfusion. The spleen also destroyed red cells, but to a less extent than the liver, the worth of the corpuscle being slightly increased after perfusion. The most striking result of the splenic perfusions was the destruction of leucocytes, the larger varieties being especially affected.

CLINICAL SOCIETY OF LONDON.

Arthritis of the Knee-joint.—Malignant Endocarditis giving Widal's Reaction.—Acute Paralytic Dilatation of the Stomach.—Lymphadenoma with Growths in the Skin.

A MEETING of this society was held on March 14th, Mr. HOWARD MARSH, the President, being in the chair.

Mr. H. W. PAGE, Dr. A. PAINE, and Dr. F. J. POYNTON made a communication on two cases of Arthritis of the Knee-joint.—Mr. PAGE briefly recorded the clinical history of two cases of Non-articular Arthritis in which the effusion, which was considerable, did not subside under the influence of rest, warmth, and local remedies. Their etiology was obscure. In both instances they have been attributed to a slight injury, but the severity and stubborn character of the arthritis made it unlikely that such was the complete explanation. When these joints were aspirated a greenish cloudy fluid was obtained, floating in which were flakes of lymph and leucocytes. Aspiration of the joints was followed by a re-accumulation of the fluid and return of pain, and it was observed that when the arthritis was at its height that the patients were slightly delirious. In both cases recovery had rapidly followed aspiration, together with irrigation of the joints with a 1 per cent. solution of carbolic acid. In the second case full doses of salicylate of soda, given after the joint had been treated by aspiration and flushing with carbolic, appeared materially to promote recovery. Mr. Page was of opinion that this form of arthritis, which in its clinical course was unusual, must be the result of an infection of the joint by a micro-organism which had a special affinity for the tissues of the joints, and he drew attention to them now because Dr. Poynton and Dr. Paine had demonstrated, isolated, and cultivated such a micro-organism, and had produced experimental results which led to the conclusion that this organism was the exciting cause of the arthritis.—Dr. POYNTON and Dr. PAINE then described the investigation which they had made in the second of the two cases described by Mr. Page. Upon two occasions they had found in the exudation numerous small diplococci growing in chains. The exudation contained in addition fibrin and leucocytes which were not necrotic. This diplococcus grew well in pure culture, in an acid medium of milk and bouillon, in bouillon to which ascitic fluid had been added, and on blood agar. The cultural and morphological characteristics were indistinguishable from those of the diplococcus of rheumatic fever. Intravenous inoculation into rabbits produced a condition more akin to that which resulted from inoculation with the diplococcus of rheumatic fever than that which resulted from the streptococcus pyogenes—that was to say, multiple arthritis, and in one case valvulitis, resulted without visceral suppurations. The spleen after death was small, and in none of the four experiments that were made did death result

from septicæmia. On the contrary, two of the animals recovered completely after showing local signs of infection, and two were killed when the arthritis in each case had existed for two months. Quite independently from Mr. Page they had by bacteriological investigation arrived at the conclusion that the infection was an ususual one, and this investigation pointed to the probability that the condition was more closely allied to a rheumatic than to a suppurative arthritis. The scientific interest of the question lay in the light that such an investigation might in the future throw on the etiology of rheumatoid arthritis and the vexed problem of rheumatic and septic processes. A point which was worthy of note was that many diplococci were present in the exudation. Dr. Poynton and Dr. Paine had found that acute and clear effusions of rheumatic fever were usually sterile both in man and in animals, but nevertheless the diplococcus might be found in the synovial membrane. They thought that the endothelial lining of the synovial membrane was an important barrier to their escape, and that in this case of arthritis this barrier had in all probability been much damaged.—The PRESIDENT remarked that the more he saw of diseases of the joints the more he felt that there was a good deal that was uncertain about them and that there was a great deal yet to learn, so that scientific studies of this kind were most welcome.

Dr. W. HALE WHITE and Mr. W. C. C. PAKES communicated a paper on a case of Malignant Endocarditis giving Widal's Reaction. The case was typically one of malignant endocarditis, the patient dying from cerebral embolism. The blood on June 10th failed to agglutinate typhoid bacilli even in a strength of 1 in 2. On the 20th agglutination was produced with a strength of 1 in 2 and 1 in 20, but not with a strength of 1 in 200. Pure cultures of streptococcus longus were obtained from the blood. On the 29th cultures from the urine collected with every precaution showed the presence of a streptococcus identical with that previously obtained from the blood and a bacillus belonging to the paracolon group. Every attempt which was made to isolate the typhoid bacillus failed. The agglutination test was tried with five different strains of bacilli, and with four a complete agglutination was obtained with a dilution of 1 in 20, and with one partial agglutination was obtained with a dilution of 1 in 200. On Sept. 13th the patient died. Blood which was taken from the heart and the spleen showed the streptococcus longus in pure culture, but no typhoid bacilli could be discovered. The patient never had spots or other signs of typhoid fever, nor were any signs of healed ulcers found post mortem. Thus this was an instance of a patient who, suffering from malignant endocarditis of streptococcal origin without any clinical, post-mortem, or bacteriological evidence of typhoid fever, yet nevertheless developed in her blood serum certain substances which had the power of agglutinating the typhoid bacillus. Dr. Hale White and Mr. Pakes pointed out the clinical importance of this result in considering the diagnosis between typhoid fever and malignant endocarditis and also alluded to the fact that many observers had failed to obtain a Widal reaction in malignant endocarditis. In this particular case the presence of the reaction could not be due to the patient having had typhoid fever previously, for no reaction was obtained when she was admitted. She was treated with various strains of anti-streptococcic serum, but without any good result.—Dr. F. S. TOOGOOD referred to the case of a man who inoculated his thumb with septic matter on Feb. 10th. This was followed by glandular enlargement and constitutional symptoms with a temperature of 104° F. Subsequently, on March 4th, there was bleeding from the nose and his blood gave Widal's reaction, but on the next day the right shoulder-joint and the tissues around were œdematous and other joints became involved. On the 10th the blood again gave Widal's reaction, with dilutions 1 in 10, 1 in 25, and 1 in 50. The patient recovered but he had presented the clinical features of septicæmia although the blood gave Widal's reaction.—The PRESIDENT said that he had seen this case and it was clearly one of septicæmia.—Dr. J. W. CARR remarked that the paper raised the question of the value of Widal's reaction. He referred to the case of a child, aged five years, whose symptoms and physical signs were typically those of acute tuberculosis mainly affecting the lungs, yet the blood tested at the Jenner Institute gave a marked Widal's reaction.—Dr. C. R. BOX said that it was most important to indicate what dilution was used. At first with low dilution he had got reactions with diseases other than enteric fever. 1 in 50 was, in his belief, the most suitable dilution for obtaining the true test in cases of actual enteric fever. Turning to the question of nomenclature, he thought that it would be much better to call this test the agglutinative or serum reaction.—Dr. W. LEE DICKINSON referred to a case of gastric ulcer which was erroneously diagnosed during life as enteric fever on the strength of the agglutinative reaction with typhoid cultures.—Dr. POYNTON remarked that his experience at St. Mary's Hospital led him to the conclusion that although the test was not infallible it was a most valuable guide. A great deal must depend upon the technique and the dilution of the culture and on the particular strain used, and this to some extent diminished the value of recorded cases.—Dr. HALE WHITE, in replying, adverted to the importance of knowing whether the patient had had enteric fever previously. He had known cases in which the attack of typhoid fever had occurred 26 years and 23 years previously. Another point was that different strains differed and several strains should be tried. Clinically a negative result should not be accepted after the fourteenth day of the illness nor until several strains had been tried. It would be interesting to follow up Dr. Toogood's case and see for how long the blood gave the reaction.

Mr. A. E. SEARS read a paper on a case of Acute Paralytic Dilatation of the Stomach which occurred in a medical man, aged 30 years. The disease commenced insidiously with an intermittent fever of obscure origin, and was accompanied by constipation, fæcal accumulation, and progressive loss of flesh. Previously to the dilatation of the stomach phlebitis of the veins of the left leg and iliac region occurred, and later the stomach became suddenly distended, and on passing an œsophageal tube three quarts of a dark green sour-smelling fluid were withdrawn. Vomiting was never present and no peristaltic waves were observed. Complete recovery followed daily lavage of the stomach, and up to the present time, just 12 months afterwards, no recurrence of the disease had taken place.—Dr. C. R. BOX congratulated Mr. Sears on the success of his case. Recovery such as this was rare and so was the absence of vomiting. Was there only acute dilatation here or was there superadded obstruction of some kind? he asked. By experiments on dead bodies he had found that the stomach could be folded up on the duodenum; or, again, it was possible for the mesenteric vessels to be dragged down over the duodenum. He had recently met with an instance of the latter kind in the post-mortem room in which the stomach and duodenum were distended by air. When the mesenteric vessels were cut the stomach almost collapsed. Rectal feeding was not always possible in these cases because sometimes they had intractable diarrhœa.

Dr. W. LEE DICKINSON and Dr. W. J. FENTON gave the further clinical history and post-mortem account of a case of Lymphadenoma with Growths in the Skin. The living patient had been shown at a meeting of the Clinical Society last April,[1] mainly on account of the growths in the skin, the true nature of which gave rise to some difference of opinion. Subsequently anti-syphilitic treatment was adopted but without benefit, and the disease made steady progress in the glands and internal organs, proving fatal in August. Post mortem the glands and spleen were found to be affected with the hard form of lymphadenoma, and there were secondary growths of the same nature in the cerebral dura mater and in the cancellous tissue of the tibia, as well as in the skin of the chest. Inoculation experiments were not undertaken, but microscopically no tubercle was found in any part except the liver, where there was at least one small tuberculous focus. The liver was lardaceous. There had been no evidence of syphilis. The case therefore proved to be one of lymphadenoma upon which tubercle had supervened.

OPHTHALMOLOGICAL SOCIETY.

Symmetrical Concentric Folds of the Choroid and Retina in Four Cases of Unusually High Myopia.—Membranous Conjunctivitis with Cases.—Diphtheria of the Conjunctiva with Cases.

AN ordinary meeting of this society was held on March 14th, Mr. W. ADAMS FROST being in the chair.

Mr. R. LAWFORD KNAGGS (Leeds) read a paper on Symmetrical Concentric Folds of the Choroid and Retina in

[1] Transactions of the Clinical Society of London, vol. xxxiv., p. 246.

Four Cases of Unusually High Myopia. The appearance presented was that of a crescent having a sharp dark edge. It was always situated on the nasal side of the disc and at varying distances from it, and when both eyes were affected the condition was symmetrical. It was vertically placed and its concavity faced the disc. It was two, three, or four times the diameter of the disc in height. The condition producing this appearance was a folding back of the choroid and retina upon themselves towards the disc, involving a detachment of both tunics from the sclerotic. The dark edge was due to the increased thickness of pigment at the summit of the fold, where it turned round upon itself. Vessels curved round the fold as round the edge of a glaucomatous cup. The appearance had been met with in four cases. Both eyes were affected in three cases, and in the fourth one the eye had been previously lost from accident. The degree of myopia varied from — 18 D. to — 38 D., neglecting astigmatism. In one eye there was a rent on the anterior surface of the fold through both tunics, showing the sclerotic, and the edges were turned towards the vitreous. In another there was a wrinkle of both coats on the nasal side of the crescent and parallel to it. In the 1901 edition of Haab's Atlas (Fig. 79) a very similar appearance is shown, but is described as true staphyloma in a highly myopic eye. The explanation was probably as follows. The anterior attachments of the choroid and retina stretching unduly in consequence of the elongation of the eyeball permitted the two inner tunics to slide back towards the posterior pole, but as they were both nailed to the sclerotic by the optic nerve this sliding movement was checked by the obstruction and led to a re-duplication of the coats within the area over which the obstruction was felt.

Mr. WALTER H. H. JESSOP read a paper on Membranous Conjunctivitis, with 13 cases. Membrane was present in all, being of varying appearance and consistence. The bacteriological cultures varied widely; in one only was there any membrane in the throat. The corresponding lymphatic glands were enlarged; fever occurred in about half. No paralytic symptoms followed in any. Eight were proved to be cases of diphtheria, the diagnosis resting on bacteriological cultures. Mr. Jessop repeated a desire previously stated that the term "diphtheritic" should be discontinued and that all the cases should be grouped as "membranous conjunctivitis," subdivisions being arranged for the separate groups according to their etiology.

Mr. SYDNEY STEPHENSON read a paper on Diphtheria of the Conjunctiva, based on 43 cases collected in five years at the Evelina Hospital for Sick Children and at the North-Eastern Hospital for Children. 75 per cent. of the cases occurred in children under three years of age and 88 per cent. under the age of four years. They were noted chiefly in the months of January, February, March, and April, especially in the last month, thus corresponding with the incidence of ordinary diphtheria. It was, in his opinion, the same disease. Many cases were traced to infection from faucial diphtheria in the same family or neighbourhood. In many instances the disease occurred subsequently to various exanthemata. Previous affections of the conjunctiva were traced only in five children. 40 per cent. of the cases presented constitutional disturbance. Albuminuria occurred in some and two displayed loss of the patellar reflex. There were seven instances of diphtheria on the skin, affecting excoriated patches and impetigenous sores, which received bacteriological confirmation. Membrane was present in 42 cases and in the remaining case the bacillus was demonstrated. In all the cases of moderate and great intensity the corresponding lymphatic glands were enlarged. In 75 per cent. the disease was unilateral. The cornea was altered in only 13 cases. One patient died and 42 patients recovered. The Klebs-Löffler bacillus was demonstrated in every case and in six cases as a pure culture. Mr. Stephenson insisted on the practical value of an immediate examination of smears of the discharge, stained in methyl-eosine, and the acid reaction of gelatin cultures. The treatment which he recommended was immediate injection of antitoxin (4000 units) and the local application of antiseptics (1 in 5000 sublimate solution or a 15 per cent. solution of potassium permanganate), with the application of silver nitrate or the galvano-cautery to ulcerations of the cornea. Isolation of the patients was necessary.

The following cases and card specimens were shown:—

Mr. GUSTAVUS HARTRIDGE: (1) Ectropion of the Uveæ; and (2) a Large Papilloma of the Conjunctiva.

Mr. N. BISHOP HARMAN and Mr. A. A. BRADBURNE (introduced): A case of Gunshot Wound of the Head, with Partial Motor Paralysis and Heminopsia.

Mr. H. WORK DODD: (1) Sarcoma of the Orbit; and (2) Calcareous Tumour of the Orbit.

Mr. J. HERBERT FISHER: Retinitis Circinata.

Mr. J. B. LAWFORD: Early Changes in the Retina following Injury.

Mr. J. H. PARSONS: (1) Pigmentation of the Retina; and (2) Arcus Senilis.

Mr. R. E. BICKERTON: Unusual Changes of the Choroid.

LARYNGOLOGICAL SOCIETY OF LONDON.

Exhibition of Cases and Specimens.

A MEETING of this society was held on March 7th, Mr. E. CRESSWELL BABER, the President, being in the chair.

Dr. H. W. FITZGERALD POWELL showed a case of Complete Recurrent Laryngeal Paralysis in a man, aged 24 years. The patient stated that in March, 1901, he suddenly lost his voice which returned after three months' treatment. In December he again suddenly lost his voice and came under Dr. Powell's care. On examination complete paralysis of the left vocal cord was found. There was an entire absence of any of the usual causes which produce such a paralysis. The patient stated that at the time of the first attack his medical attendant considered that he had influenza. At the present time there was some movement in the cord and the voice had suddenly undergone great improvement.—Sir FELIX SEMON considered that the paralysis was originally due to influenza and that some extra vocal effort or a cold would be sufficient to produce a recurrence.

Dr. POWELL also showed a case of Hæmatoma of the Vocal Cord in a female, aged 29 years, the symptoms of which were hoarseness and loss of voice coming on suddenly, and there was sluggish movement of the left cord.—Dr. F. DE HAVILLAND HALL pointed out that such hæmorrhages often coincided with the menstrual period or some catamenial disturbance.

Dr. POWELL exhibited a modification of Mackenzie's Laryngeal Forceps for the removal of growths in the anterior commissure and also Drills for draining the maxillary antrum through the tooth socket.

Dr. F. WILLCOCKS showed a case of Paralysis of the Left Vocal Cord symptoms of which had been present since last Christmas. There was no history of syphilis nor were there signs of any intra-thoracic pressure.—Dr. DE HAVILLAND HALL thought that although there were no physical signs paralysis was probably due to the pressure of an aneurysm.—Mr. P. R. W. DE SANTI, Sir FELIX SEMON, and Dr. J. DONELAN instanced cases in which the paralysis of the left cord had preceded any other signs of an aneurysm.

Mr. H. BETHAM ROBINSON showed a case of Laryngeal Stenosis due to cicatricial contraction in the inter-arytenoid region in a young man, aged 20 years, who complained of difficulty of breathing on exertion. He gave a history of diphtheria some years previously which had left him with an impaired voice. The voice had gradually improved, so that now it was only husky. Examination showed a perforation of the nasal septum, loss of the uvula, and a cicatricial web passing between the arytenoids. There was no history of syphilis.—Sir FELIX SEMON pointed out the importance of carefully distinguishing between true paralysis and loss of abduction due to mechanical causes, as seen in this case.—The opinion of members of the society was divided as to whether the cicatricial web was due to diphtheria or to syphilis.

Dr. A. BRONNER showed sections of a Tuberculous Growth of the Mucous Membrane of the Right Middle Turbinal in a man aged 50 years.—Dr. STCLAIR THOMSON mentioned that tuberbulosis of the middle turbinate was extremely rare.

Mr. DE SANTI showed a case of Tertiary Intra-nasal Syphilis in which the right frontal sinus had been opened twice with negative results in a man aged 48 years. He invited suggestions as to further treatment.—Several members considered that there was probably a sequestrum at the junction of the sphenoid and the vomer and advised that this region should be explored.

Mr. DE SANTI also showed a case of Angio-neurotic Œdema of the Right Hand accompanied by attacks of dyspnœa in a woman, aged 26 years. Though examination of the larynx revealed no œdema or abnormal condition he pointed out that cases had been recorded in which death

from suffocation had occurred due to sudden œdema of the larynx.

Dr. H. LAMBERT LACK showed a case of rapidly recurring Papilloma of the Larynx. When first seen the patient had a growth in the right vocal cord which was removed. This was followed by considerable congestion and thickening of both vocal cords which had gradually cleared up. At the present time there was recurrence of the papilloma on the right cord and also two distinct growths on the other cord.

Dr. J. DUNDAS GRANT showed a case of Traumatic Tracheal Stenosis in a girl, aged 22 years, dating from an accident at the age of three years. During the last six months she had been troubled by some dyspnœa.

Dr. G. C. CATHCART showed a case of Rhinorrhœa in a girl, aged nine years, which had existed since the age of two years. Adenoids had been removed and various intracranial operations had been performed and both locally and internally a great variety of drugs had been tried.—Dr. DE HAVILLAND HALL recommended a mustard foot-bath and the administration of atropine and morphia at the commencement of an attack.—The treatment of such cases was further discussed.

Mr. R. LAKE showed a case of Atrophic Rhinitis in which melted paraffin had been injected into the inferior turbinated body with good results. The patient had been under treatment for many years and was so far improved that crust-formation had ceased, but she complained that she could not blow her nose. Mr. Lake had therefore endeavoured to contract the passages by enlarging the inferior turbinate by means of submucous injections of paraffin. These had proved most successful as far as the patient's comfort was concerned.

Dr. H. TILLEY showed a case of Papillomatous Growth on the Posterior Edge of the Vomer. The growth was dead-white in colour, contrasting very strongly with the normal redness of the surrounding structures. He regarded it as a harmless curiosity.

Dr. TILLEY also showed a case of Syphilitic Disease of the Larynx simulating malignant disease. The right vocal cord was motionless on phonation and there was considerable uniform swelling of its posterior half. There was also some ulceration below the cords.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

Scarlet Fever.

A MEETING of this society was held on March 3rd, Mr. A. WYNTER BLYTH, the President, being in the chair.

Dr. JAMES R. KAYE, medical officer of health of the West Riding, read a paper entitled, "Scarlet Fever: How Far do Statistics Prove or Disprove the Utility of Hospital Isolation?" The paper was for the most part a critical examination of the statistics put forward by Dr. C. K. Millard, medical officer of health of Leicester, last year with the view of showing the failure of hospitals to reduce the prevalence or the mortality of scarlet fever. In one of his tables Dr. Millard had given the attack-rate, case mortality, and death-rate in three large towns isolating 64 per cent. of the cases, and in six smaller isolating 28 per cent. only during the year 1882-99, which showed no appreciable advantage from the better isolation; but Dr. Kaye maintained that though the populations of the groups might be equal the errors arising from disturbing factors, as epidemic cycles, social conditions, &c., would be more marked in the smaller number of communities. If the eighteen-year period were divided into two of nine years each the advantage appeared on the side of the first group in the former, but of the second in the latter period; this division, however, was not fair as regards the period 1891-99 which included two maxima and one minimum of prevalence in the first group of towns, but one maximum and two minima in the second. Each increased its percentage of isolation from 57 and 16 in the former period to 71 and 39 in the latter, and each reaped great advantages, but if the results in the first group were less marked it must be noted that 32 per cent. of the population lived in small tenements of one or two rooms, as against 17 in the second, and in order to equalise the population of each group some towns (as Derby and Halifax) had been included in the latter, though isolating a larger proportion of cases than any of those in the former. Dr. Kaye took 93 towns with an aggregate population of over 10,000,000, which he divided into four groups, A to D, isolating respectively under 20 per cent. from 20 to 50, from 50 to 80, and over 80 per cent. During the years 1891-99 Groups A and D were probably the most uniform in their practice, for otherwise they would have fallen with others that for lack of accommodation or other reasons had carried out isolation to a different extent at different times. The good results obtained by Group D were evident, and if A appeared to have a lower general and case mortality than Band C it was probably due to the milder character of the disease, since municipal activity was generally the results of the severity of the visitations. Dr. Millard in his Table VI. had grouped nine towns isolating over, and nine under, 40 per cent. of their cases, and four with practically no isolation, the second group showing the best results during the period 1890-99. But the table was most fallacious, for he had selected 23 towns only when statistics were available for 93, the population of Group I. was double that of Group II., and most of the latter isolated over 40 per cent. and should therefore have been included in Group I. One in each of the three groups notified for some time first cases only; Croydon had had isolation since 1895 only, and the social conditions of several were widely different; one only of Group I. in his Table VIII. isolated over 50 per cent., and they therefore could not be fairly described as "good isolators," and there were great irregularities in the practice of different towns. The cases of Warrington among those with, and of Preston of those without, isolation were not comparable, for Warrington was in the centre of a thickly populated district, while Preston stood alone in a healthy open country, while its population having been over-estimated had been increasing slowly and therefore had a smaller proportion of individuals of susceptible ages. The hospital at Warrington was so inadequate that, though overcrowded, many cases had to wait a week or a fortnight for admission and were nevertheless described by Dr. Millard as isolated. Yet Warrington, recognising the advantages of isolation, was about to increase the accommodation while the medical officer of health of Preston complained of being handicapped by the want of a hospital which the authorities had decided on providing, and not without good grounds, for while in 1900 the attack rate, case mortality, and death-rate from scarlet fever had been 4·4 per mille, 6·4 per cent., and 0·284 per mille respectively, they had been 15·4, 4·9, and 0·761 in 1901. In support of his contention as to the better social conditions of the population of Preston he pointed out that while the number of persons to the acre was practically the same, the proportion of dwellings of one or two rooms was but 32 per 1000, as against 88 in Warrington, occupied by 19 and 58 per 100, of the respective populations, while the schools were overcrowded at Warrington, there being but 107 seats for 100 scholars, as against 150 for 100 at Preston, and the proportion of children under 10 years, the susceptible material for scarlet fever, was greater at Warrington—viz., 270 per 1000 of the total population, against 239 at Preston. But though he maintained that the principle of isolation was right the practice and machinery employed were in most places open to great improvement, and the methods of disinfection, &c., should be conscientiously recorded if any sound conclusions were to be drawn as to the degrees of success attained.

Dr. H. MALET (medical officer of health of Wolverhampton) complimented Dr. Kaye on his demonstration of the worthlessness of current statistics of scarlet fever and urged investigation on the methods adopted in the cases of the epidemics of small-pox at Sheffield and Gloucester—i.e., taking account of the conditions of each town and of each house and family involved instead of generalising from the varying prevalence of the disease in the whole country. In Wolverhampton he had for eight years noted the number of susceptible children in every house in which a case was notified. Those from which patients were removed were naturally for the most part the more crowded and therefore unfavourable. Omitting all in which there were no other susceptible individuals he found that in 1758 houses from which first cases were removed 4064 susceptible children were left, while in 228 houses where the patients were treated at home there were 468 such. Of the former only 4·8, but of the latter 28·2 per cent., subsequently contracted the disease, or 95·2 of the former and only 71·8 of the latter escaped infection. Many of both classes were reported simultaneously, but 2·2 per cent. only occurred after the removal of the first cases and 19·2 after non-removal of those first notified. The results of non-removal would be still less favourable could one

eliminate the fallacy arising from erroneous diagnosis, for if a case were found on admission to have been wrongly diagnosed it was excluded from the report, whereas with those treated at home such correction was obviously impossible and they appeared as cases which did not spread. As to the relative advantages of hospital and home treatment, the case mortality among 4251 cases in hospital was 3·93 per cent and among 228 alleged cases treated at home 5·58 per cent.

After some remarks by Mr. T. ROBINSON (Leicestershire), Dr. H. E. ARMSTRONG (Newcastle-on-Tyne), and Mr. H. BEALE COLLINS (Kingston-on-Thames),

Dr. MILLARD defended his own tables and cast doubts on some of Dr. Kaye's inferences, though he fully admitted the importance of local and social conditions. He denied having wished to compare Preston and Warrington except as members of groups and regretted not having excluded, as he had intended, towns where notification had been partial or for short periods only. He could not admit that neglect of hospital provision was evidence of a lighter incidence of scarlet fever, for Swansea was a proof of the contrary. Dr. Kaye's paper had at any rate shown the urgent necessity for further inquiry. Referring to Dr. Malet's important investigations he observed that "it stood to reason that when the first cases were removed the chances of other children contracting the infection would be less."

Dr. KAYE, replying, justified his minute comparison of Warrington and Preston as involving the essence of the dispute, and criticised the inclusion by Dr. Millard in one group of towns that on his own principle properly belonged to another, for under such circumstances averages were worse than worthless—in fact, deceptive. Dr. Millard had, in his closing sentence, conceded the very point at issue and the benefits to the community of hospital isolation. But he could not refrain from deprecating Dr. Millard's indiscretion in having given the publicity of a congress to views the soundness of which was, to say the least, unproved, but which had made such an impression on some local authorities that but for his intervention several towns in Yorkshire would have seriously considered the expediency of closing their hospitals.

CHELSEA CLINICAL SOCIETY.

Discussion on the Nature, Origin, and General Principles of Treatment of Cancer.

THE adjourned clinical debate of this society was held at the Jenner Institute of Preventive Medicine, Chelsea-gardens, S.W., on March 18th, Dr. C. A. MORRIS, C.V.O., the President, being in the chair.

Sir WILLIAM MITCHELL BANKS said that he would confine his remarks very definitely to certain points in the discussion on cancer. He spoke not from statistics but from an experience lasting over 35 years. He considered that statistics were very dangerous things to manipulate; they could be worked about in various ways, and he knew of no condition that more required a man to go into his upper chamber and say earnestly to himself that he must act honestly than when he was making a statistical table. There was a good deal of impressionism which imbued a man's mind after he had seen many things and his remarks that night would be more a case of impressionism than statistics. It was two years since he had given in the Lettsomian Lectures a general review of their existing state of their knowledge of cancer. Had anything been learned since then? He was sorry to say that nothing of any moment had occurred to increase their knowledge of the subject, referring especially to cancer of the breast. They were, in fact, pretty much where they were two years ago except possibly in regard to the employment of electricity, and the question was whether that was likely to act in a curative manner or not. In regard to the increase of cancer it was now universally admitted that in all civilised peoples there had been a notable increase in the amount of cancerous disease. The last defence of the opposite view was probably made by Dr. Arthur Newsholme in 1899 who argued that the so-called increase in cancer was more apparent than real and was due to better diagnostic skill producing more accuracy in death certificates and to the greater frequency and accuracy of necropsies in hospitals. However, the great mass of statistics accumulated by almost every civilised nation had been too much for Dr. Newsholme's views, which, in his opinion, were untenable. Sir William Banks said that his experience of 35 years pointed distinctly to the fact that cancer was beginning to attack younger people. He was absolutely certain that cancer now made its appearance at a much earlier period of life than it formerly did. Statistics showed that while there was a notable increase of cancer in both sexes, in the case of the male sex the increase had been greater than in the case of the female. Another point which had to be considered was, could anything be positively put forward as a great, broad, and general reason for the cause of cancer? There was, of course, the relation of cancer to geographical situation—namely, that it was most prevalent in the neighbourhood of rivers that periodically overflowed and low, damp situations, especially those with a clay soil. The parts that showed the least amount of cancer were high situations, especially those with a chalk formation. The difficulty was that no one professed to know how all this came about. He himself had only been able to recognise one cause as standing out prominently from among the many that had been suggested, and that was the great increase in the amount of food, and notably of meat, which was now consumed by civilised people. The increase in cancerous disease probably did not date further back than about 40 years ago. In the medical periodicals of 1850 they would not find anyone writing about the increase in the amount of cancer; it was only during the last generation that that point had come up. They had therefore to inquire what might be the notable changes in the life of civilised men that were likely to produce this increase in cancer. It was not drunkenness, because a most common form of cancer was that which affected the female breast, and he had seen nothing in the many patients who had been under him to indicate that drunkenness was connected with it. Syphilis could not be the cause, because among all the women whom he had seen with cancer of the breast he could hardly remember one whose character was bad. It could not be bad water, bad housing, or bad sanitation, because there was hardly any great city which did not now possess an abundant supply of good water and where sanitary affairs were not properly supervised. They had, therefore, to seek for some great change in the lives of civilised people which could not be a matter of doubt, and which must have some notable effect on their physical well-being. In his opinion that change was the great increase in the amount of animal food consumed at the present time. The wretched half-starved patient was not the most prone to cancer; its most numerous victims were well-nourished persons with plenty of fat and often with the colour of health in their cheeks. It was Mr. Moore of the Middlesex Hospital who had said that cancer was eminently a disease of persons whose previous life had been healthy and whose nutritive vigour gave them otherwise a prospect of long life. During the last 20 years the importation of animal food from foreign countries had been enormous. The class of persons who ate meat once a week 50 years ago no longer existed; vast numbers of persons eat meat daily and the well-to-do classes eat it three times a day. It appeared to him, therefore, that the increase in the eating of meat had something to do with the causation of cancer. Referring to Dr. J. F. W. Tatham's statistics in THE LANCET of March 15th, p. 745, he said that it was the male who was now beginning to suffer more from the disease than the female in proportion to what used to be the case, and it was to be noted that it was the male who ate the heavy food in ever-increasing quantity, while the female remained much as before in regard to her eating. Opinions varied as to whether there was or was not a cancer parasite. The parasite was said to be a degeneration, but in his opinion that was not so. He thought that there was a special body in cancer very easily recognisable when they were able to appreciate it which, at all events, accompanied cancer. Mr. H. G. Plimmer went all the way from London to Liverpool to defend the parasitic theory and Mr. H. J. Stiles arrived from Edinburgh to denounce it as a degeneration of the nuclei of the epithelial cells. He did not consider that Mr. Stiles had proved his case. It had to be remembered that the growing part of a carcinoma was its circumference, and the centre was hard—that is to say, it was the point where fibrous degeneration was going on. In the active part alone the parasites were found, and that seemed to him opposed to the theory of degeneration. Further, in the staining of these cancer parasites the reagents that affected them did not affect the nuclei of epithelial cells. Those were two very strong

arguments against the idea of degeneration, but it was a question which was still under consideration. Where the parasites came from, what they were, whether they preceded cancer or followed it, were questions that had not yet been answered. Were they blastomycetes, did they belong to the class of yeasts, or to what might be called the animal variety? They were not sure of that. There was a considerable belief that they belonged to the class of the yeasts, but he thought that many were now turning round to the idea that the cancer parasite was a form of protozoon. That, however, had not been determined. In regard to the question whether cancer was an infectious disease his view was that if cancer was infectious its infective powers were of the very lowest type. He saw to his great surprise that a great body of German authorities had given it as their opinion that cancer was an infectious disease, but he could see no distinct proof of it. If it was such an infective disease some proof should be advanced. It was no argument to say that if you rubbed one cancerous surface against a surface which was uninfected that the growth which would ensue proved the infectivity of cancer, because all that was produced was an epithelioma from constant irritation. If they irritated a mucous membrane for any given length of time an epithelioma could be produced. That sort of argument, in his opinion, was extremely ridiculous. It had also been said that there were cases of surgeons becoming infected with cancer, but he had never heard of anything of the sort. Surgeons could certainly become infected with syphilis, but he would be interested to hear of a case of a surgeon becoming infected in a similar manner by cancer. He sincerely hoped that more caution would be observed in the pronouncements that pathologists and others might make in the future than had been observed hitherto. Quite recently one gentleman had brought forward some views from which the most important results were expected, but the wonderful bodies which he had discovered turned out to be nothing more than cells from the corks of his bottles.

MR. A. PEARCE GOULD said that at the present time there were two great methods of treatment of cancer or so-called treatment, the operative and the non-operative. In surgical interference the wider and more extensive the operation the greater was the chance of success. But he thought they all met with cases which caused them to make that statement with less confidence. They were, however, all agreed that in the main the assertion had much truth in it. Amputation, however, was not curing cancer. It might free a man from his malady to excise an area—it might be a very extensive area—of tissue round a cancer and the malignant process might be stayed, but what ground was there for hoping that operations would ever accomplish all that they wished? By the cure of cancer he meant something quite other than the removal of parts which were affected or might become affected, followed by no return of the disease. In saying that he was not in any way calling in question the value of their present surgical methods of treatment of cancer, although they left very much to be desired. It had been stated, he believed by Mr. H. T. Butlin, that if every cancer could be properly operated on when it was of the size of a buckshot or a pea that their results would be different. He thought that that was quite correct, but he feared that that time would never arrive. Nothing was more striking than the complete absence of symptoms in the earlier stages of cancerous disease. Of course, in the lip it was seen from the first, but if they took the more hidden parts of the body, such as the rectum or the uterus, it was the experience of all surgeons that the disease had often advanced to a considerable extent before the most careful, watchful, and intelligent patient had been able to take any notice of it. While they rejoiced at practising surgery at the earliest possible moment in the history of a cancer yet they could not but feel that the time would not arrive when they would see their cancer patients in the very early stages of the disease. In regard to the curability of cancer he asked if there was any ground for thinking that cancer would prove to be curable. They saw such a long and almost constant procession of sufferers from malignant disease going more or less rapidly from bad to worse until death came not only as a welcome but also as a belated guest, that he was afraid that there was a tendency to feel that cancer was an incurable disease. He was, however, quite sure that that was not the case. The cure of any disease was only brought about by the action of physiological processes. All their vaunted remedies only produced their beneficial results by influencing in some way or other the ordinary physiological processes of the body. They were quite unable to introduce any new force into the body and they could only work upon the inherent powers of nature and through those powers. The only hope for the cure of any disease was by observation of the methods in which nature herself dealt with that disease. He therefore thought that it was most important to recognise the fact that cancer sometimes did undergo a spontaneous cure and that the physiological forces of the human body were sometimes sufficient to accomplish the perfect cure of cancer. He would give them instances of the spontaneous repair that did take place in cancer. In the case of a woman with very extensive cancerous disease that had destroyed the left breast, with large glands in the axilla and above the clavicle, and with that horribly distressing œdema that occurred in these cases, large areas of epithelial tissue were observed to be healing over the cancerous ulcers. In another patient, where no operation had been performed, the whole breast had been destroyed by malignant disease, and she was admitted to the hospital with an ulcer of the size of the palm of the hand. There were numerous nodules about the breast, in both axillæ, and there was also cancer in one lung. She eventually died, but a month before that occurred a blue line was seen round the large ulcer on the chest which spread and entirely healed over the ulcer. Before the patient died it was found on examination that the epithelium of that cicatrix was exactly similar to the epithelium of the surrounding skin. The disappearance of malignant nodules was not uncommonly observed, but he would mention particularly two cases in which quite extensive malignant growths had disappeared. In one the patient was a woman with cancer in the right breast and recurrence in the axilla of the same side and on the side of the neck. The growth was also present in the opposite breast and in the opposite axilla and there were signs of extensive malignant disease in the right lung and spontaneous fracture occurred of the neck of her right femur. She received no special treatment because she was expected to die; but she began to mend, the deposits all disappeared, the disease vanished, and she had remained well since. That could be regarded as a case in which the ordinary physiological forces of the body had dealt satisfactorily with most extensive malignant disease. The second case was that of a man who was operated on for carcinoma of the left maxilla. A fungating growth recurred in the site of operation and the patient was told that nothing more could be done, but he got better and seven months after the recurrence had been noted he was absolutely well without the smallest trace of any malignant disease. In those cases the diagnosis had been confirmed by careful microscopic examination. In order not to be misunderstood he wished to make it clear that in cancer there should be early, wide, and efficient removal, but they must not think that that was to be the last word in the treatment of cancer. Some day there would be a better word spoken than that and he sincerely hoped that that day would soon arrive.

MR. A. MARMADUKE SHEILD said that he was not particularly anxious to speak that evening because personally he had long felt that the medical profession, with regard to the causation of tumour growth generally, had been guilty of a great deal of talk, a vast amount of theorising, and very little real knowledge upon which to act. It had long been his belief that the directions of their study should be towards the causation of the simpler forms of tumour as a preliminary towards the understanding of the more complex varieties. There was scarcely one of them in that room who, if he surveyed his skin, would not see one or more warts and moles upon it. They knew no more of the causation of those simple growths than they did of cancer. Who could tell them why one man's body should be covered with fatty tumours and not that of another? Who could explain the cause of a cancellous exostosis or of a nævoid growth on the cheek of an infant? He had often thought that the diseases of plants, especially of trees, were well worthy of study in the direction of tumour growth. The excessive formation of cellular tissue around the parasite of the oak-gall, the enormous excrescences around the trunks of birch trees, were of the highest suggestive importance for scientists and laboratory experts. He felt confident that they needed a correlation between accurate clinical observation and pathological and microscopical investigations. The subject was of such immense importance to the whole of mankind that

it had only surprised him how successive governments in this country had not afforded full pecuniary and other facilities for the study of one of Nature's secrets, which would never be given up to mere theorisers or superficial observers. The remarks he was making were to him full of difficulty, because he felt the futility, to use no stronger word, of advancing theories for parasitic bodies, or peculiar fluids, or influences of one cell upon another, which would be easy enough to concoct, but impossible to prove or to sustain. He was confident that pathologists needed a stricter classification of the varieties of carcinoma, and he doubted whether the explanation of the origin of a slowly-growing epithelioma upon the face of an old man was the same as that of a quickly-growing spheroidal cancer in the mamma of a woman. There were reasonable grounds for doubt that the explanation of the causes of that pathological puzzle melanosis were the same as, for instance, a sarcoma growing from the fascia or skin. Regarding the cancerous growths of the skin he was able to assert that their microscopical characters were so peculiar and complex that many years of patient investigation would be needful before even a sensible nomenclature could be arranged. This was especially the case with the varieties of sarcoma. It might be remembered that he published in THE LANCET[1] some years ago a case of a gentleman whose face had been exposed to the rays of a tropical sun and who suffered from multiple ulcerating tumours on his red and freckled skin. Dr. J. Galloway made an elaborate investigation of these and termed them "epithelioma," but he was bound to say that the structure was exceedingly peculiar, and it was most difficult to classify those remarkable growths properly. Then what were they to say of those remarkable instances of spontaneous disappearance of, according to their now limited vision, evident malignant tumours within the abdominal cavities? Some years ago he saw with the late Dr. J. Cavafy a young woman who had ascites and dysphagia—an unusual combination in the young; an exploratory operation was done, and a fine nodulated tumour was found round the œsophageal opening of the stomach. This viscus was bound down and contracted so that it could not be pulled forward to the abdominal wall, and the portal vein was obviously compressed by the growth, which passed across the front of the spine. The ascitic fluid was evacuated and the patient was for some weeks much relieved. She slowly sank and died as expected. At the necropsy no sign of ulceration or lesion was found in the stomach and the growth was so bossy and nodulated that it seemed hardly worth examining it. Yet when this was done the growth was not cancer at all. It was well-formed fibrous tissue such as would be seen in a primary scar. He had no doubt had it not been for its mechanical situation that it might easily have disappeared. He had two cases now living of gastro-jejunostomy, one over two years, another nearly five years, after the operation. The condition of the stomach at the pylorus was as typical of cancer as it could be, but instead of wasting and dying both those individuals were well and ruddy and no traces of tumours were to be felt. Yet another instance: he had recently operated upon a man for a huge soft "sarcomatous" tumour, apparently springing from the suprarenal or kidney, which filled the abdomen and was so incorporated with intestine as to be hopeless for removal. No one doubted that his end was near. He was now walking about in excellent health and no trace of the tumour was to be felt. Those instances, which might be multiplied, showed them, he thought, that a class of growths existed the causation of which must be very distinct from the malignant tumours which they exactly simulated. With regard to cancer of the breast, in which he was particularly interested, one remarkable fact had often struck him, and it was this: why should the mamma have such a monopoly in frequency of spheroidal carcinoma and other glands very similarly constituted escape? Take the parotid and submaxillary salivary glands. Their cellular structure and minute composition were very similar to those of the milk gland. They both had ducts leading to a surface. How rare was primary cancer of either of those great glands. If cancer were due to a parasite what more inviting situation could be found for its development? The frequency of cancer of the breast at the time when the formative cells ceased their proper function was very suggestive of an error of growth; it was equally suggestive of a parasite seizing upon degenerating tissues and causing their riotous proliferation and ultimate decay. Nothing was of greater importance in their knowledge of morbid growths than the fact that the cells of the secondary growths exactly simulated the cells of the structure in which the primary growth originated. Thus, cancer of the liver secondary to cancer of the intestine showed columnar epithelium, cancer of the axillary glands secondary to "duct cancer" of the mamma showed columnar epithelium, and cancer of the thyroid gland, the deposits, which were distributed secondarily in the bones, so exactly simulated thyroid gland structure that it was difficult to distinguish between them. How strongly did that suggest that the infective element was cellular, not parasitic—or if indeed parasitic, that the parasitic element must be intracellular rather than extraneous. But he thought every impartial mind would allow that there was the closest possible relation between natural formative activity in cells and the growth of a malignant tumour, especially a rapidly-growing sarcoma of bone or fascia. Take the case of a crustacean where a limb had been shed. The formative activity of cells here was far in excess of what they observed in sarcoma, yet they were marshalled in orderly array, and a more or less perfect limb resulted. Let them reflect on the extraordinary cell-development that occurred in the formation of the fœtus. What was the mystery which induced the contact of two microscopical cells and from their contact masses of cells arose and developed into a mass which would exceed any sarcoma? Were not the cells arranged in layers and laminæ and complicated folds, resulting in the elaboration of a complete organism? They were completely ignorant of the laws which governed cell proliferation—for laws undoubtedly there were—and it seemed to him that a more complete knowledge of normal cell development was useful before they could explain abnormal deviations. With regard to their knowledge of the remedial measures for carcinoma, operation free and extensive was doubtless the best at their command—and the best was often bad. He had long ago pointed out in regard to cancer of the breast that everything supported the fact that in certain individuals there was a something inimical to the growth of cancer which prevented or retarded return. It was that fact more than the operation which was responsible for those few but remarkable cases, in the knowledge of every surgeon of experience, where long years had elapsed since operation and still the individual remained well. He could hardly dwell too strongly upon the importance of collection and observation of such cases as those so as to make clinical work and pathological investigation go hand in hand. He feared that the remarks which he had made were rather of a discouraging nature, but really it seemed to him that their energies for many years should be towards investigation rather than discussion. The acknowledgment of ignorance was the first step towards improvement. But he believed and held very strongly that the secret of tumour formation was largely bound up in that mysterious "something" which governed cell development and proliferation, that a study of the origin of the innocent tumours might be of the utmost importance, and that experiments in that direction could only be made by experts working under the best of circumstances, with well-equipped laboratories and proper and adequate financial reward and assistance. The time was happily passing away when their profession was contented to think that subjects of the first material importance could be dealt with by private enterprise, and he only trusted that that discussion might do something towards the furtherance of a proper investigation of one of the most mysterious of diseases by proper persons, men who combined scientific observation with accuracy and estimated the value of their own discoveries, and who at all events would not give to the public any flimsy and superficial statements regarding curative measures for this terrible class of diseases until their truth and efficacy had been proved beyond doubt. He repeated his belief that the mysteries of tumour growth were bound up in the mysteries of cell proliferation as illustrated on the contact of the sperm cell with the ovarian cell, and whoever solved a problem like that would throw light on many subjects otherwise doomed to perpetual darkness.

Dr. A. BARRY BLACKER, in giving a demonstration of the apparatus used in the present position of x rays and ultra-violet rays in the treatment of cancer, said that the success which had attended the employment of physical

[1] THE LANCET, Jan. 7th, 1899, p. 22.

methods in the treatment of various skin diseases had been followed by the employment of the same or similar methods in the treatment of cancer, more especially of those varieties which were situated in the more superficial positions. These methods might be divided into three classes: 1. The light treatment associated with the name of Professor Finsen, and introduced by him; (2) the electric brush discharge from any high-tension electrical machine; and (3) the x rays. The physical data on which Professor Finsen's process was founded were that the light from the sun and from an arc lamp was rich in the most refrangible rays—i.e., the blue, violet, and ultra-violet, and that these were destructive to many forms of bacteria; and that the ultra-violet rays had but little penetrative power—for most substances the penetrative power increased with the wave lengths, extremely short waves had scarcely any penetrating power at all. As far as it was at present possible to determine it would seem as if the electrical brush discharge method of treatment presented much the same features as Finsen's. It differed, however, in the source from which the rays were derived. An electrical brush discharge was a powerful source of invisible ultra-violet and visible violet and blue rays with a small admixture only of heat rays, for the chemical rays given off acted like light on a photographic film, they were concentrated by a lens, and were reflected and concentrated by a concave mirror. They converted oxygen into ozone and they set up fluorescence in barium platino-cyanide and other salts. Moreover, they produced a reaction on the skin resembling that produced by the sun or an arc, which differed from the reaction produced by x rays in being produced quickly and healing quickly instead of appearing slowly and healing slowly. The employment of the brush discharge had advantages owing to the absence of heat rays and the presence of violet rays without the admixture of all wave lengths, but it was complicated by the ozone given off and by the products of electrolysis which must be generated to some small extent in the skin from the decomposition of sodium chloride, &c. The physical data on which the treatment by means of x rays was founded differed essentially from the foregoing methods. With all of them it was possible to destroy bacteria, but under the x rays many of them flourished. The same complications of ozone and electrolytic products besides the brush discharge from the tube were present as in the electric treatment, but the great penetrative power of the x rays marked a wide distinction between them and the violet. At first sight it did not seem probable that those which passed through the body could be capable of producing effect and it would seem more possible that effects might be produced by some of the rays which were absorbed. The well-known action on the skin produced by the x rays and variously described showed that alterations and destruction of cells might be produced and the difference in the onset and in the result from that obtained from the violet rays demonstrated that a difference existed in their actions. It would appear, therefore, that there were various rays which might be utilised in the treatment of cancer, violet rays which penetrated the tissues only to a small extent and were bactericidal and produced some tissue change, the x rays which penetrated the whole of the body and produced tissue destruction but were not bactericidal, and mixed rays which could be produced by various methods; it did not seem unreasonable to suppose that rays might be isolated which might be found capable of destroying bacilli or acting upon various cells in different parts of the body.

EDINBURGH OBSTETRICAL SOCIETY.

Exhibition of Specimens.—The Premature Infant.—Thyroid Extract in Puerperal Eclampsia.

A MEETING of this society was held on March 12th, Dr. JAMES RITCHIE, the President, being in the chair.

Specimens were shown by Professor A. R. SIMPSON, Dr. F. W. N. HAULTAIN, Dr. D. BERRY HART, and Dr. N. T. BREWIS.

Dr. J. W. BALLANTYNE read a paper on the Problem of the Premature Infant. The premature infant was born with the skin, skeleton, and organs of a seven months' fœtus. He was called upon to play the part of a full-time infant with the personalia of a fœtus and was suddenly forced into surroundings of a kind which imposed upon him urgent calls to which he was little able to respond. Some cases met these new requirements with wonderful adaptability, but many succumbed, being unable to maintain a physiological equilibrium in their unexpected environment. Some survived but progressed into life with a baneful debility. The premature infant differed from the immature fœtus in the possession of viability—that was, being capable of an independent existence outside the mother's uterus. This period varied, as the state of the maternal health during the pregnancy had great effect upon the vitality of the infant. The seven months' fœtus of a healthy mother might survive when the seven months' fœtus of a syphilitic parent might be absolutely non-viable. The period of viability depended, not only upon the number of months spent in the uterus, but also upon the character of the life of these months. The date of probable viability had changed owing to the recent improvements in the management of the premature infant. The introduction of the incubator and the exclusion of sepsis had already pushed back the age of viability to an earlier period, and with further knowledge it might be possible in the future to rescue the lives of infants of earlier prematurity. In considering the anatomy of the premature infant they found the weight of a seven months' fœtus varied from three to four and a half pounds and in length was about 16 inches. The skin was delicate and transparent, but had lost the bright red colour of earlier fœtal life; there was little subcutaneous tissue, so that the face had still a somewhat senile look; lanugo plentifully covered the extensor aspects of the limbs as well as the face and back, and some hair was present on the scalp. The nails were thin and did not project beyond the finger tips. In the eyes the traces of the pupillary membrane might still be seen. In the skeleton nearly all the ossific nuclei which were found in the full-time infant were present in the premature one, but they were smaller in size. The ossific nucleus in the lower epiphysis of the femur was rarely to be seen, and there was none in the upper end of the tibia, the cuboid, or in the hyoid bone. The grey and white matter of the brain could not yet be differentiated. The foramen ovale of the heart was still patent and the kidneys were lobulated. The fœtus also had different surroundings, it lived in a hydrosphere instead of an atmosphere, and at birth it was separated from the placenta, which was so essential an organ for its existence. Dr. Ballantyne then gave an account of the physiology and pathology of the premature infant. In the management of the premature infant they must endeavour to create an environment which would, in some points at least, resemble the intra-uterine nidus. The incubator was accordingly utilised, the temperature being kept constantly above that of the infant's body, and in it the patient could be protected from light and injury. The infant could not be surrounded by imitation liquor amnii, but a moist atmosphere could be obtained by hanging a wet sponge inside the incubator. The incubator should also be kept as nearly aseptic as possible. For food the best was mother's milk if obtainable, or if not pre-digested nutriment; and it had sometimes been found of advantage to pass it directly into the stomach through a tube or to drop it into the mouth with a dropper. But the intra-uterine nutriment of a fœtus contained more iron than there was in the mother's milk; it appeared advisable, therefore, to give iron, and the best form seemed to be liquor ferri peptonatus, giving it in five-minim doses thrice daily. If the mother had no milk asses' milk might be obtainable; if not, cow's milk carefully sterilised could be given every one and a half hours in not more than four teaspoonfuls at a time. The amount of sugar should be limited. As to the exact modification or dilution of the milk opinions varied; some gave the full strength. The treatment of the premature condition also involved the awakening or strengthening of dormant or inefficient functions. This applied to pulmonary respiration, some artificial assistance in the establishment and strengthening of respiration being very helpful. Prevention of prematurity was the ideal management, and much could be done in this direction in combating syphilis, alcoholism, &c. But the infant born prematurely as a result of obstetric interference would always require attention. The problem of the premature infant was also enhanced by the steady fall in the birth-rate in the British Isles and colonies as well as in foreign countries. In England and Wales in 1871 the birth-rate was 34·7 per 1000; it had fallen to 29·3 in 1899, to 28·9 in 1900, and as low as 28·5 in 1901. It was evident, therefore, that there was a pressing need to conserve the lives of infants even

although premature.—Dr. R. MILNE MURRAY, the PRESIDENT, and others made remarks on the paper and Dr. BALLANTYNE replied.

Dr. H. OLIPHANT NICHOLSON read Further Notes on the Use of Thyroid Extract in Puerperal Eclampsia and the Pre-eclamptic State. In a previous paper he gave reasons to show how the principal symptoms of the eclamptic state would be explained in terms of thyroid inadequacy. Special stress was laid on the fact that the arrest of the secretion of urine, by allowing the absorption of toxins, led up to convulsions. A deficiency of iodothyrin towards the end of pregnancy might result in anuria, and the degree of toxæmia would depend, directly or indirectly, upon the quantity and activity of the thyroid secretion. Thyroid extract was therefore indicated in the pre-eclamptic state and also after the onset of convulsions. In the latter case a large dose of morphia hypodermically was a valuable adjunct to the treatment, as by inhibiting metabolism it stopped the formation of poisons and gave the thyroid gland time to recover itself. Morphia in doses of from half to one grain also completely removed arterial spasm. Details of the administration of thyroid extract in four recent cases were then given. The first case was a primipara who in the eighth month of pregnancy suffered from severe headache, insomnia, scanty urine, and uniform swelling of the hands, face, and body. Two fits occurred and were treated with morphia; after the stupor passed off 10 grains of thyroid extract were given and five grains repeated every four hours. The urine was solid on boiling. Premature labour set in and a stillborn child was born about 40 hours afterwards. The patient recovered rapidly. The second patient had suffered from eclampsia in three previous pregnancies; the last had been treated with thyroid extract and she had been told to place herself under treatment early in any subsequent pregnancy. In her fourth pregnancy she began taking the thyroid extract on her own initiative at the third month. She had felt altogether different in this pregnancy, had had no sickness, no swelling of the face or body, and no giddiness, blindness, or headache. The urine was secreted in normal quantity and did not contain any albumin. Her labour was not yet due. Thyroid treatment in the third and fourth cases also gave good results. Dr. Nicholson reasoned from the experience noted that it was wise to push the thyroid extract till some symptoms of thyroidism were induced. He did not think that the relaxation of the renal vessels with consequent diuresis could account for the removal of all the other symptoms and believed that the thyroid extract acted somewhat as a specific in favouring metabolism in some unknown way.—Dr. HAULTAIN, Dr. MURRAY, Dr. S. MCVIE, and others discussed the paper.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Swallowing of Metallic Denture.—Hypertrophy of the Prostate.—Suprapubic Prostatectomy.

A MEETING of this section was held on Feb. 28th, Mr. T. MYLES, the President, being in the chair.

Mr. G. JAMESON JOHNSTON read a paper on a case of Swallowing of a Metallic Denture successfully treated by the internal administration of cotton-wool. The patient, a man, aged 20 years, whilst swimming in the open sea was struck in the face by a wave. He immediately felt a choking sensation, was unable to swim on his breast, and made his way to the shore by swimming on his back. Some of those on the shore slapped him on the back to displace the false teeth that he told them were choking him; the first slapping on the back produced dyspnœa. He became black in the face; a further slapping on the back got rid of the dyspnœa, though it caused him much pain. On admission to hospital a probang was passed and the patient experienced so much relief that it was felt that the denture had passed into the stomach. Soon afterwards pains in the pyloric end of the stomach were complained of and they continued for some days. Mr. Johnston then decided on treating him with sandwiches containing a thin layer of cotton-wool in each. A week after admission he was given one and a half drachms of compound liquorice powder which acted as an aperient and got rid of the denture which was found rolled in cotton-wool in his fæces.—Mr. J. LENTAIGNE confessed that he would not like to take cotton-wool under any circumstances, as he thought that it would not be without risk of producing obstruction. The case illustrated the well-known danger of small dentures. All the accidents resulting from artificial teeth getting into the pharynx were due to small dentures, which he thought should be prohibited, for a large plate could be made for any case calling for artificial teeth.

Mr. R. H. TOBIN read a paper on the treatment of Senile Hypertrophy of the Prostate. He traced the interdependence of the prostate gland and the testis and their correlation. In the choice of radical methods he pointed out the value of the presence or absence of sexual desires as an indication. If these were present the case was probably one of true hypertrophy, to be treated by vasectomy or castration; if they were absent tumours causing pressure atrophy of the prostate probably constituted the enlargement and enucleation would effect a cure. The failure of vasectomy in certain cases he considered to be due to the non-inclusion in the resection of the filaments of the hypogastric plexus that accompanied the artery of the vas deferens, these being the most direct sympathetic link between the testicle and prostate. Of the radical methods he advocated complete enucleation of the gland as practised by Mr. P. J. Freyer.

Mr. E. H. TAYLOR read a paper on Suprapubic Prostatectomy. He pointed out that the aim of suprapubic prostatectomy should be: (1) to remove *en masse* and by a process of enucleation those portions of the enlarged lateral lobes which lay beside the urethra and exerted a compressing influence upon it; and (2) to remove the enlarged middle lobe in the same manner, seeing that its action in a large percentage of cases was to obstruct the bladder outlet. He said that suprapubic prostatectomy as practised at the present day remained in its essential details the operation of McGill and of the Leeds school, it aimed at enucleation of encapsuled growths and met all the requirements of the case. He went on to state that a remarkable paper appeared in the *British Medical Journal* some months ago and another quite recently under the authorship of Mr. Freyer of London, in which he related certain cases of *total removal of the prostate and its capsule*. Mr. Taylor, however, had no hesitation in saying that Mr. Freyer was labouring under a misapprehension. Were total extirpation carried out what would it mean? It would of necessity involve the removal of the prostatic urethra, to which there adhered in these cases a varying amount of prostatic tissue and which remained connected with the common ejaculatory ducts. These were displaced downwards and backwards with their surrounding tissue and constituted important supports of the prostatic urethra after the adenomatous masses had been enucleated. Total extirpation would also imply the detachment from its surroundings of the interfibrous investment of the prostate as well as of the thinned cortex. Now this would be not only a totally unwarranted procedure, but in the highest degree dangerous, as it would inevitably mean the laceration of the veins of the prostatic venous plexus which lay in close contact with the interfibrous layer which Mr. Freyer alluded to as the prostatic capsule. This fibrous layer was very tough, whereas the encapsuled masses were of a much softer and more friable consistency. The result was that when the finger was introduced through the incision in the floor of the bladder it found its way, following the direction of least resistance, between the tough investment of the prostate or greatly thinned cortical layer and the encapsuled mass, and this was the true explanation of the ready manner by which the enucleation of enormous tumours might be carried out. Mr. Freyer, however, had, no doubt, extended the scope of McGill's operation and in this respect had succeeded in making a decided advance in this department of surgery.—The PRESIDENT congratulated the section on the interesting papers which had been read.—Mr. HENRY GRAY CROLY thought that German anatomists had really added nothing to Alcock's description of the anatomy of the gland.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY.—A meeting of this society was held on March 13th, Dr. E. Clifford Beale, the President, being in the chair.—Dr. A. Whitfield showed: 1. A case of Figurate Seborrhœic Eczema in a woman. In demonstrating this case Dr. Whitfield said that it was, of course, a common disease, but that the patient before them exhibited a particularly good example of the eruption. The history was that the eruption had spread from the neck downwards during the

last seven months. The scalp was extremely scurfy, but this had not been noticed and therefore the duration of the disease in this region was unknown. When shown the whole of the chest, the upper part of the back, the upper arms and the forearms, especially on their extensor surfaces, as well as the upper parts of the thighs, were covered with a red, scaly, and slightly scabbed eruption made up on close examination of congested and œdematous follicles. The shape of the patches varied, but all were either round, oval, or polycyclical, with very defined edges. Itching was extremely severe but otherwise the health was good. In the axillæ were some small boils probably from secondary infection. 2. A case of very papular Rosacea where the diffuse congestion was almost entirely absent and pustulation was quite unnoticeable. The patient was a woman, aged 36 years, and she had had it on and off for years. There was a fair amount of evidence of dyspepsia, though not of sufficiently painful a type for the patient to volunteer any information about it.—Dr. Whitfield also demonstrated (for Dr. W. A. Milligan) a case of Paget's Disease of the Nipple in a woman, aged 51 years. There had been a discharge from the left nipple on and off since the menopause, which occurred at 45 years of age. 12 months previous to exhibition this discharge became offensive and induced her to consult a medical man. By careful dressing the scabs were removed and the discharge ceased to be offensive, though the nipple became ulcerated and the place never healed, but continued to increase in size. When shown there was an area of about the size of a five-shilling-piece over which the skin was dusky-red and infiltrated but not ulcerated. In this area there were white patches of almost normal-looking skin and this apparent improvement had taken place while the patient had been taking iodide of potassium. The nipple was not destroyed but was considerably smaller and harder than was that on the other side, while at its base there was a small hard mass to be felt which suggested a tumour rather than mastitis. There were also two large and very hard glands in the axilla. Dr. Milligan had sent the patient into the hospital for operation under the care of Mr. G. B. Mower White. Mr. White said that he proposed, in view of the presence of the glands, to remove the breast and to clear the axilla.—Mr. H. S. Elworthy showed a woman, aged 24 years, who had suffered from rumbling noises in the stomach since she was 17 years old. Her previous history showed nothing remarkable, with the exception of an attack of typhoid fever. If the patient stood up slight pressure of the left lower ribs caused a loud rumbling and gurgling noise apparently in the stomach. This was often accompanied by the regurgitation of gas up the œsophagus, and occasionally came on without any pressure. The stomach apparently hung much lower than normal, but did not reach up high under the costal margin, suggesting that a slight degree of gastroptosis was present. Mr. Elworthy considered that it was probably a gastric neurosis, but discussed the possibility of diaphragmatic hernia and dilated large intestine.—The cases were discussed by the President, Dr. J. G. Glover, Dr. A. W. Wilson, and others.—Mr. White showed a short series of Foreign Bodies found in inflamed appendices, including (1) an Appendix from an acute perforative case in which eight oxyurides were found in the organ; (2) an Appendix from a non-suppurative case in which removal had been practised as a precautionary measure to prevent a second attack and the organ was found to contain five shots and another piece of lead; and (3) a Metal Cap from the end of a pencil which was taken from a fæcal abscess in a boy, and might therefore have been either in the cæcum or in the appendix.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 7th, Dr. T. C. Meggison, the President, being in the chair.—The President showed a case of Marked Facial Paralysis.—Dr. F. S. Toogood showed (1) a typical case of Myxœdema on which he was about to commence treatment by thyroid extract; and (2) a young man who after having been knocked down by a cab was supposed to be drunk and was arrested, but was sent to the Lewisham Infirmary. Paralysis of the left side soon supervened. Dr. Toogood trephined over the posterior and anterior meningeal arteries and removed a large clot from the region of the latter. The patient made a good recovery.—Dr. James Donelan read notes of cases in which the postponement of the removal of adenoid masses in the naso-pharynx led to severe aural complications. He pointed out that the recurrence of slight earache and the evidence of Eustachian obstruction furnished by hearing tests afforded a sufficiently distinct warning to enable the practitioner to advise the immediate removal of the growth.—Dr. Morgan Dockrell and the President discussed the paper.—Dr. G. Herschell showed a new Rectal Electrode which could be distended with water while in the rectum and so afforded a larger surface for the passage of the current. He also exhibited and described a High-tension Kidder Induction-coil Apparatus which he considered to be most useful for electro-therapeutics.—Mr. R. V. Donnellan read notes of the case of a woman who had brought about abortion by thrusting a knitting-needle through the walls of the vagina and bladder into the uterus. Septicæmic symptoms ensued and her temperature was 105° F. before the birth of the child. The use of anti-streptococcic serum was followed by immediate improvement and final recovery.—Dr. Peacock (for Dr. P. Scott) read notes of an obscure case in the Miller Hospital, characterised by dulness of one lung, brawny swelling and enlargement of veins over the chest and neck, enlargement of the glands, pyrexia, and coma. The patient recovered with permanent enlargement of the episternal and epigastric veins. Various diagnoses had been suggested, including a gumma, an aneurysm, a malignant growth in the mediastinum, an embolus of the pulmonary artery, and some obscure inflammatory action. There were points against all of these.—Dr. Peacock (for Mr. J. Poland) also showed a specimen of Renal Calculi with Malignant Disease.—Mr. Augustus K. A. Cæsar showed Nine Vesical Calculi of a total weight of 4 ounces 140 grains (the largest individually weighing 7 drachms 50 grains) which had been passed by a woman, aged 70 years, who had suffered for years from complete procidentia.—Dr. J. P. Henry submitted some notes on Dionine as an Analgesic in Eye Diseases. He had tried it both in private practice and at the Italian Hospital in a number of cases of glaucoma, iritis, irido-cyclitis, keratitis, and corneal ulcers, and found that while the superficial anæsthetic action was much inferior to that of cocaine it had a much more prompt and durable analgesic action on deep-seated pain in the eye which was quickly and often permanently relieved. It also favourably influenced the course of those diseases. It could be prescribed together with atropin, eserin, and pilocarpin.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on March 13th, Dr. J. Halliday Croom, the President, being in the chair.—Various members showed specimens, chiefly Myomata of the Uterus.—Mr. P. J. Freyer (as guest) showed a Myoma which he believed to be the largest intravesical tumour on record removed by a suprapubic incision; it weighed nine ounces and in labour had impeded delivery till successfully pushed out of the way.—The President, in a communication on Suppuration of the Ovary, said that such was almost invariably due to infective salpingitis and was favoured by the presence of a corpus luteum or cyst; an exceptional case upon which he had lately operated showed no intimate connexion between the tube and ovary, but a small amount of pus outside the crenated edges of a corpus luteum had led to such persistent pyrexia as was remarkable in view of the absence of fever in connexion with much larger foci in other parts of the body, notably in many cases of pyo-salpinx and pyometra. The patient did well, though for 24 hours she had hæmatemesis with a quickened pulse but no pyrexia. He looked upon hæmatemesis as one of the most serious complications of abdominal work, and in his experience it had been almost always the precursor of death and so closely associated with infection that though its cause was in no way revealed by post mortem lesions he was disposed to attribute it to sepsis rather than to vomiting due to the anæsthetic, handling of the stomach and intestines, thrombosis of the omental vessels after injury or ligature and consequent embolism in the walls of the stomach, or any other cause than had been suggested. It was not confined to abdominal operations and in connexion with general surgery had been very ably discussed by Robert Purves who found it associated with a mortality of 72 per cent. Age was no factor in its occurrence.—Mr. Freyer, in a paper on Stone in the Female Bladder, drew attention to the ease and success with which litholapaxy could be performed in the female, even in very young children, or in the later months of pregnancy; the only special difficulty, escape along the side of the instrument of the indispensable fluid from the bladder, was easily prevented by the pressure of the fore and middle fingers of an assistant's hand on the posterior lip of the

urethra. Women recovered from the operation in a day or two and no incontinence was left. He had had most satisfactory results in seven children and 15 adults; one uric acid calculus, weighing two ounces, in a woman 70 years of age he could not crush and it was removed by vaginal lithotomy, but he would now prefer the suprapubic incision; before adopting litholapaxy he had removed stones from three children through the urethra, but incontinence was left in one.—Mr. Spanton showed stones weighing 70 and 180 grains which had been removed through the urethra of very young children and a slate-pencil 2·5 inches long from the bladder of a girl 11 years of age. There was no incontinence in any of these cases, but he concurred with Mr. Freyer that litholapaxy (or, in the case of very large stones, suprapubic lithotomy) was the treatment to be adopted.—The President, Mr. Furneaux Jordan, Dr. Snow, Dr. Travers, and Dr. Macnaughton-Jones also joined in the discussion.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical evening of this society was held on March 7th, Mr. Alfred Cooper, the President, being in the chair.—Dr. J. B. Ball showed a case of Hysterical Mutism occurring in a man, aged 37 years, who had been completely aphonic since he accidentally fell over a dog in the dark some six months previously. He was unable either to speak or to whisper. Applications of the faradic battery had been used without avail.—Dr. O. F. Grünbaum suggested that the patient should be brought under the influence of hypnotism or of alcohol.—Mr. R. W. Lloyd suggested the use of an anæsthetic.—Mr. C. R. B. Keetley showed his Extension Splint for the Lower Limbs by means of which active extension could be applied.—Mr. F. Swinford Edwards showed a man, aged 45 years, from whose bladder he had removed a large amount of Villous Growth by suprapubic cystotomy some four months previously. The patient was now in good health and was able to walk four miles a day without discomfort.—Mr. Edwards also showed a case after Transverse Fracture of the Patella. The patient, a man, aged 24 years, broke his patella on Jan. 18th, 1902. 40 hours later Mr. Edwards exposed the joint by an external semilunar flap and united the fragments with silver wire. Gentle passive movement was commenced on the eleventh day and in three weeks the patient was allowed to walk.—Mr. Patmore, Mr. L. A. Bidwell, and Mr. G. E. Twynam discussed the case.—Mr. Bidwell showed two cases of Rodent Ulcer treated by the x rays. In the one the ulcer had completely healed, while the other was still under treatment. He regarded scraping followed by treatment with the x rays as the best method to employ.—Mr. McAdam Eccles showed a man, aged 32 years, whose Right Testis lay in Scarpa's triangle.—Dr. Seymour Taylor showed a case of Obesity. The patient, an omnibus driver, aged 40 years, was abnormally stout and often fell asleep while driving. The organs were healthy with the exception of a feeble heart's action and a little chronic bronchitis. He was much cyanosed, a condition which was increased when he fell asleep and his head hung forward. He had much improved under treatment by venesection and a modified Tufnell diet.—Dr. Arthur Saunders showed a case of Cretinism occurring in a boy, aged 12 years. No trace of the thyroid gland could be made out and the rings of the trachea were distinctly felt. He had been placed on dried thyroid gland for a month in December and again for the last month. In this time he had grown one inch and had lost seven pounds in weight.—Dr. Saunders also showed a case of Organic Nervous Disease which he considered to be tabes dorsalis resulting from congenital syphilis coupled with some intracranial affection of like origin.—Mr. H. W. Chambers exhibited a case of Anencephalus. This was accompanied, as was so often the case, by a condition of hydramnios and birth was delayed until the end of the tenth month.

MIDLAND MEDICAL SOCIETY.—A meeting of this society was held on March 5th, Mr. Arthur Oakes, the President, being in the chair.—Mr. H. G. Barling showed a woman, 42 years of age, upon whom he had operated three weeks previously for Strangulated Hernia through a slit in the great omentum. The symptoms were moderate vomiting, almost but not absolute obstruction, and a gradually increasing distension of what appeared to be a huge coil of intestine running transversely across the lower part of the abdomen, leading to a diagnosis of volvulus. At the operation it was found that about four inches of the ileum, the cæcum, the ascending colon, and a portion of the transverse colon had become herniated through a slit in the great omentum. A good recovery followed.—Mr. Barling also showed a man, aged 55 years, who came under his care with Chronic Intestinal Obstruction from a broad band of adhesion following herniotomy. The herniotomy had been performed five months previously for a right femoral hernia. The obstruction now existing was overcome by making a lateral anastomosis between the ileum, eight inches from the ileo-cæcal valve, and the cæcum by means of a Murphy button one and a quarter inches in diameter. A good recovery followed.—Mr. Christopher Martin showed an Apparatus for obtaining the raised pelvic position in abdominal operations (Trendelenburg position). It consisted of an enamelled iron frame (eight inches high, three feet long, and 20 inches broad) which was placed on the ordinary operating table. The upper end sloped obliquely downwards at an angle of 45°. The patient was placed with the buttocks and legs resting horizontally on the frame, and the lumbar and lower dorsal region of the body on the sloping end of the same. The chest, shoulders, and head of the patient lay horizontally on the operating table. The result was that the pelvis was raised about eight inches above the level of the chest, the spine was in a position of acute lordosis, and the abdomen was inclined at an angle of about 45°. Mr. Martin had used this position for several months in performing abdominal sections and had found it most useful. It was, in his opinion, an improvement on the ordinary Trendelenburg position. The frame was made for him by Mr. Ash, Edmund-street, Birmingham.—Mr. J. Furneaux Jordan showed a specimen of Dermoid Cyst of the Ovary. The patient from whom it was removed made an excellent recovery.—Dr. C. E. Purslow showed a Soft Fibro-Myoma of the Uterus which he had removed by abdominal hysterectomy. The patient made a good recovery.—Mr. George Heaton read a paper on the Treatment of Appendicitis.

GLASGOW SOUTHERN MEDICAL SOCIETY.—A meeting of this society was held on March 6th, Dr. John Stewart, the President, being in the chair.—Following upon the reading of the minutes the President announced the gift to the society by Messrs. Fletcher, Fletcher, and Co., Limited, of a framed pair of portraits from their Vibrona Art Series, reproduced in photogravure from the original paintings. These were unanimously accepted. An exhibit was also made of pharmaceutical products by the same firm.—Dr. Robert Pollok then gave an address on General and Medical Experience with the Troops in South Africa. In the course of his lecture Dr. Pollok gave a very interesting and instructive description of his work as a surgeon with His Majesty's forces in the present war. Leaving Bloemfontein, where he saw a great deal of enteric fever, he accompanied the 18th Brigade and was in the midst of the exciting events that befell the march on Pretoria and Komati Port. A detailed account was given of the component parts of the field hospital and the method of attendance on the wounded. The address was abundantly illustrated by a fine series of lantern slides and was greatly appreciated by a large meeting of the society.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 5th, Dr. E. C. Kingdon, the President, being in the chair.—Mr. R. G. Hogarth showed the following cases: (1) Extensive Nævus of the Face involving the Palate and the Inside of the Cheek; (2) Tuberculous Peritonitis cured by operation on a congenital hydrocele which existed coincidently—the sac of the tunica vaginalis was studded with miliary tubercles; (3) Spina Bifida cured by excision; (4) a case of Coxa Vara (with skiagrams); (5) an adult one year after Excision of the Knee; and (6) a case of Friedreich's Disease.—The cases were discussed by the President and Mr. Willis, Mr. Jacob, Mr. Hunter, Mr. J. Mackie, Mr. Woods, Mr. Mackenzie, and Miss S. Gray.—Mr. Hogarth replied.—Dr. Mackenzie read a paper entitled, "Observations on Post Mortems," and gave an account of four cases observed during life and examined after death. They were as follows: (1) perforated gastric ulcer; (2) aneurysm of the cœliac axis; (3) aneurysm of the transverse aorta; and (4) ruptured kidney.—The paper was discussed by the President, Mr. Hunter, Mr. Woods, Dr. J. F. Blurton, Mr. Hogarth, Dr. A. Fulton, Mr. Mackie, and Mr. Willis.—Dr. Mackenzie replied.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—The sixth meeting of the session of this society was held on March 12th, Dr. Barclay J. Baron being in the chair.—Dr.

E. Klein, F.R.S., communicated a most exhaustive paper on Plague, illustrated by a large number of beautifully executed lantern slides.—The address was followed by a general discussion of the subject, in which Dr. R. Farrar, Dr. D. S. Davies, Mr. J. Hanclocke Wathen, and Dr. O. Symes took part

Reviews and Notices of Books.

Selected Essays and Addresses by Sir James Paget. Edited by STEPHEN PAGET, F.R.C.S. Eng. London: Longmans, Green, and Co. 1902. 8vo, pp. 445. Price 12*s.* 6*d.* net.

THE lectures, essays, and addresses contained in this volume have been selected, Mr. Stephen Paget tells us in his brief preface, as likely to prove of interest to the members of the medical profession rather than to the general reader. In saying this, however, we think that he does some injustice to the memory of his father. Several of the essays might well occupy a leisure hour of any man of letters since they treat of subjects in which all have a common interest. Amongst these may be mentioned the essay on the Contrast of Temperance with Abstinence, which supplies excellent arguments for the *via media* and which first appeared in the pages of the *Contemporary Review*; the essay on National Health and National Work, showing the serious diminution in the amount of work done by those who ought to be healthy and strong and free from disease as a result of preventable illness; the carefully expressed essay on the Relations between Theology and Science, in which the difficulties of the scientific and the theological mind in regard to religion are clearly put; the interesting essay on the Chronometry of Life—these and several others are characterised by such well-arranged and copious information and abundance of illustration expressed in such admirable literary form that they may be read by all with pleasure and profit. Unfortunately, the written page cannot reproduce the agreeable manner, the easy and unhesitating delivery in which the *ars celare artem* had become by long and assiduous practice perfect. At the same time, we must admit that many of the addresses possess a special value for the members of the medical profession—such, for example, as the article on Osteitis Deformans, to which Sir James Paget first called the special attention of pathologists, and those on Senile Scrofula and on Sexual Hypochondriasis. Besides the intrinsic merits of these and some other of the essays Mr. Stephen Paget has done well in selecting from his father's works those which, like the lectures on Nervous Mimicry and Dissection Wounds, can only be read by those who keep files of our own or of contemporary journals or who have access to libraries containing such periodicals as St. Bartholomew's Hospital Reports.

Sir James Paget was exceedingly happy in his choice of subjects for casual addresses, introductory lectures, and the like, though this was no doubt due to the wide views which he entertained of the relations of the medical profession to other branches of knowledge and in part to his own large information. As examples may be taken the essay entitled Errors in the Chronometry of Life, that on Stammering with other Organs than those of Speech, and that on Cases that Bone-setters Cure. The perusal of these essays impresses the reader with the high standard of literary excellence invariably maintained by Sir James Paget in his writings. Every page bears witness to the pains which he has taken to collect and to marshal his facts. He is very accurate. There is no slipslop writing nor is there any attempt at fine writing. The lectures on Nervous Mimicry are not inferior in style to the Hunterian Oration which was, perhaps, his greatest effort. That oration was delivered with great *éclat* before a crowded and distinguished audience, of whom our present King (then Prince of Wales) was one; and it is interesting, not only as one of the best amongst the many brilliant orations that have been given on that subject in the theatre of the Royal College of Surgeons of England, but because it contains the results of the reflections on Hunter's work of the man who was, after Cline, the most familiar with the contents of the museum, and who was best qualified to judge of the value of the labours of the Father of English scientific surgery.

The essay on Elemental Pathology, which constituted the presidential address to the Pathological Section at the Cambridge meeting of the British Medical Association in 1880, is an admirable example of the interest that Sir James Paget could excite upon a subject which must have long attracted his attention, though without leading him to discuss it, in his ordinary physiological and pathological lectures. In this essay he insists on the value of observations made upon the diseases of plants as illustrating the maladies of animals. He points out that hypertrophy and atrophy and senile decay are of constant occurrence in both kingdoms, and that a slow and incomplete healing of wounds takes place in plants comparable with that observed under similar conditions in animals; that parasitic growths and their consequences may be seen in both realms of nature; and that canker or cancer presents many points of analogy in plants and in animals. That he should have selected so novel a subject and have made his lecture so entertaining was a surprise to many who heard him speak on that occasion. But botany, though he modestly disclaims any more than a superficial knowledge of that subject, was by no means a strange department of knowledge to him. That address was delivered in 1880, but if we open the beautifully illustrated work of Curtis on British Entomology we shall find that in 1831 and 1832, nearly 50 years previously, he had forwarded to Mr. Curtis such excellent specimens of the plants on which the insects depicted fed, that they were selected to represent typical specimens of those plants, and it cannot be supposed that so careful and accurate an observer had overlooked even at that early period of his life many of those facts with which he illustrates his lecture.

The article on Experiments on Animals appears opportunely at the present time when the subject has been ventilated afresh in the *Times*. Whilst we have ourselves always been the consistent advocates of the prevention of all unnecessary forms of cruelty to animals we would recommend the temperate and judicial expression of opinion by Sir James Paget to the vivisection abolitionist who, led away by sentiment, exaggerates his statements till they cease to be truths and defeat their own end. We believe that Sir James Paget expresses the views of the large majority of thoughtful members of the profession in pointing out that the amount of pain inflicted by the physiologist or surgeon is trifling as compared with the huge aggregate of pain that is occasioned by the pursuit of sport or for the acquisition of adornments which has not even the plea of usefulness in mitigation. This article might well be reprinted and distributed as a circular since it is itself a sufficient answer and would serve to refute the absurd statements that, after having been categorically denied, still continue to be maintained. We have said enough, we hope, to induce many, both of those belonging to our own as well as to other professions, to purchase these—which we trust will not prove ephemeral—literary remains of Sir James Paget's work.

Le Médecin dans la Société Contemporaine: Conférences de Déontologie. Par MM. les Docteurs P. LE GENDRE et G. LEPAGE. Paris: Masson et Cie. 1902. Pp. 218. Price 2 francs.

To the general reader this book will prove of interest chiefly because it relates incidents in the ordinary every-day life of medical men in France, and especially in provincial

France. The authors express regret that no formal course of teaching is given on the subject of deontology. They point out truly enough that the duties of the medical practitioner towards society have been shown by numerous judgments given in the law courts; that part of deontology has therefore assumed a well-recognised form and is treated of in formal lectures under the designation of "medical jurisprudence." Deontology is not, however, by any means limited to this important and well-recognised subject. It includes the duties of the medical man towards his patients, towards other members of the profession, and towards those associated with his medical work—druggists, for example, and midwives. Finally, deontology deals with "*l'ensemble des usages et des convenances professionnelles.*" The subject, it is evident, naturally covers a great deal of ground and the authors are on occasion a little inclined to be discursive; for example, the young practitioner is warned against the designing mother. The cautions given as to certain medical men who frequent health resorts may be justifiable in some cases.

At the present moment the chapter which deals with the relations between medical men and midwives is perhaps of topical interest. The authors of the book speak of these ladies as auxiliaries to the medical profession and place them a little lower than the druggists, but the positions occupied by the medical man and the midwife differ in different localities and according to the relative amount of knowledge possessed by each. Fortunately disagreements are uncommon, but they are not unknown, and examples bearing on this point are given. At the present time in France midwives have to obtain a diploma of proficiency after having studied for a period of not less than two years. The authors regard this regulation as a truly progressive one; it may diminish the number, but it will increase the efficiency, of the midwives. Ultimately, however, this will lead to a diminution in the fees received by medical men. It is therefore necessary, the authors think, that from the point of view of expediency medical students who hope ultimately to practise in the country should devote an increased amount of time and care to the study of obstetrics and ensure that their knowledge of midwifery is well in advance of that of the midwives. Medical men alone are allowed to use instruments in labours, but midwives are allowed to practise vaccination. The law runs much as follows: "Midwives are forbidden to employ instruments. In the case of difficult labours they must send for a medical practitioner. They are also forbidden to prescribe drugs," with certain exceptions. "Midwives are allowed to vaccinate and revaccinate for protection against smallpox." The authors say that, especially in the large towns, many midwives illegally practise medicine, they perform small operations, make gynæcological examinations, and treat some of the diseases of children. Fines may be imposed under the Act for the illegal practice of medicine, from 100 francs to 500 francs for the first offence, from 500 francs to 1000 francs, or imprisonment for from six days to six months, or fine and imprisonment at the option of the court. The sentences actually passed, however, have been light. The experience gained in France of the effects of licensing midwives may at the present time possibly be of interest not only to medical men but also to English politicians.

A Text-book of Zoology. By G. P. MUDGE, A.R.C.Sc. Lond., F.Z.S. London: Edwin Arnold. 1901. Pp. 416. Price 7*s.* 6*d.*

THIS book is designed to meet the biological requirements of the preliminary scientific examination for the M.B. Lond. and also the intermediate examination for the B.Sc. Lond. The author has been most successful in writing a genuine text-book, but he has at the same time arranged his material in a convenient form for examination purposes.

In the first chapter the general principles of biology are ably and clearly defined, such, for instance, as the relation of the organism to its environment, principles which it is essential that the student should thoroughly grasp at the very beginning of his studies. The second chapter gives a clear and concise account of the great classes of the animal kingdom and the differences in structure which distinguish them from one another. The following chapters deal with the animal types required by the University schedule—viz., the Rabbit, Frog, Dog-fish, Cray-fish, Earth-worm, Cockroach, Freshwater Mussel, Hydra, Amœba, and Paramœcium. The last four chapters are devoted to Embryology, Heredity, Variation, Oögenesis, and Parthenogenesis.

In the chapters devoted to the animal types the author has, in our opinion, very wisely and very successfully preferred to compare and to contrast the differences and similarities of the various organs rather than to describe each animal in detail as an entity by itself. This method not only throws into relief what is important, but it also has the immense value of preparing the student for the form in which questions are usually set at the examinations. The more important sections of the book are concisely summarised in a tabular form at the end. These tables will not only prove invaluable for purposes of revision, but they will also serve as admirable examples to the student of how to extract the essence of a matter and to cast it into a useful and accessible note. The illustrations, although they are not too numerous, are good. They are apparently for the most part sketches of actual dissections and not more or less imaginary diagrams. They will therefore serve as a faithful guide to the student in dissections and will not discourage or make him sceptical of the very existence of the parts they claim to demonstrate, as is so often the case with diagrammatic and ideal illustrations. The six coloured figures which illustrate in a general scheme the vascular organs and the course of the circulation in the principal animals considered will be especially useful to the student. It is a pity that the life-history of the cockroach is not figured, as this would have made the illustrations of the types more nearly complete, but we suppose that it is utopian to expect in English books that profusion of beautiful figures which is seen in American ones. The treatment of the important principles of heredity and variation is sound and lucid though of necessity somewhat elementary; it will, however, prove a most valuable introduction of these great doctrines to the medical student.

We can strongly recommend this book not only as the best we have seen for the purposes of the examinations for which it is intended, but as a sound and readable introduction to the study of zoology for the general reader.

Nothnagel's Encyclopædia of Practical Medicine (*Variola, Vaccination, Varicella, &c.*). By H. IMMERMANN, TH. VON JURGENSEN, C. LIEBERMEISTER, H. LENHARTZ, and G. STICKER. English edition. Edited with additions by Sir JOHN W. MOORE, M.D. Dub. Authorised translation from the German under the supervision of ALFRED STENGEL, M.D. Philadelphia and London: W. B. Saunders and Co. 1902. Pp. 682. Price 21*s.*

THIS volume of Nothnagel's Encyclopædia of Practical Medicine contains articles on Variola, Vaccination, Varicella, Cholera, Erysipelas, Whooping-cough, and Hay Fever. These fevers have been described by their respective authors on a basis of the very widest pathology and in complete harmony with the spirit of scientific tolerance which, owing to the genius of Nothnagel, is noticeable in all volumes of the original German Encyclopædia. Broadly speaking, the general principle has been accepted with regard to each disease which is dealt with in this book that the determination of specific infections is dependent on three factors—X, Y, and Z, of which X is the specific organism, Y the external conditions necessary for the life or culture of this organism,

and Z the susceptible subject. The mathematical conception that if any one of these three factors is wanting, or in other words equals O, the whole product becomes zero, reconciles many of the apparently conflicting views which exponents of rival theories hold on the subject of infection. Taking, for instance, a concrete example of a miasmatic infection such as cholera, the formula X Y Z supports the views of those who, like Pettenkofer, insist on the predisposition of locality, as well as of those who, like Koch, believe in the specific character of the parasite. And by admitting the factor of susceptibility in the host the importance of diathesis is not excluded.

In the article on Variola, which is from the pen of Dr. H. Immermann of Basel, the parasitology of the small-pox virus is chiefly concerned with the investigations of Van der Loeff, Pfeiffer, and Guarnieri on the nature of a sporozoön, which is described by all these observers as possessing almost similar characteristics. The interest which attaches to the investigations of these observers centres in the fact that there is almost complete correspondence in their results. The account of the parasitology is undoubtedly of very great interest, but it is to be regretted that the editor of the English edition has not exercised his prerogative and brought the pathological history completely up to date. Dr. Immermann's vindication of vaccination in the prophylaxis of small-pox will be read with peculiar interest at the present time, since it is probably the most complete and unassailable indictment of the propaganda of anti-vaccination fanatics which has ever been published.

The articles on Cholera Asiatica and Nostras are by Dr. C. Liebermeister of Tübingen. Although in the account of the etiology of this disease controversial matter which was of more interest 40 years ago than at the present time bulks somewhat largely, nevertheless the matured experience of this veteran clinician imparts a very practical ring to everything that he has to say on the subject of symptoms, diagnosis, and treatment. As regards the latter, the value of warm and hot baths and the intravenous injection of water is fully emphasised.

The subject of Erysipelas and Erysipeloid is ably treated by Dr. Hermann Lenhartz of Hamburg. Erysipeloid, or Rosenbach's zoönotic finger erysipeloid, is a peculiar disease not generally described in English text-books, which appears to be a progressive infection which is very liable to attack the fingers of those who handle carcasses of animals, dead game, or fish.

Dr. G. Sticker supplies the chapter on Whooping-cough which is a very masterly clinical account of this spasmodic affection. The spirit of scientific tolerance which we alluded to at the commencement of this review as pervading all sections of the Encyclopædia is well exemplified in Dr. Sticker's felicitous combination of the rival hypotheses on which various authors found their definition of the disease. To quote Dr. Sticker's own words: "The majority of physicians still believe that it is necessary to decide in favour of, and to defend, one or other of these hypotheses, but few endeavour to combine them, yet nothing seems more natural than to say whooping-cough is an infectious disease as regards its external cause; it is a catarrh as regards anatomic localisation of its most marked disturbances; it is a neurosis in relation to its most prominent symptoms." The treatment of this disorder, as described by the author, amounts to little more than a destructive criticism of the methods usually employed. Quinine and camphor are practically the only two drugs which escape Dr. Sticker's sweeping condemnation.

The same author supplies a lengthy chapter on Hay Fever, under the name of "Bostock's Summer Catarrh"—a departure in nomenclature which is likely to lead to confusion, though flattering to our national vanity. In his usua brilliant and slashing style Dr. Sticker disposes of the narrow conception which many authorities entertain with regard to the etiology of this disease, and sums up the situation by declaring that "the unity of the picture described by Bostock requires a unique etiology which only the combination of a living specific excitant with a particular predisposition can satisfactorily explain."

The manner in which Sir J. W. Moore has conducted the task of translation and revision is entirely admirable, and with very few exceptions all important matter has been brought well up to date, and the discretion vested in his hands of modifying the original text where thought necessary has been most wisely exercised.

LIBRARY TABLE.

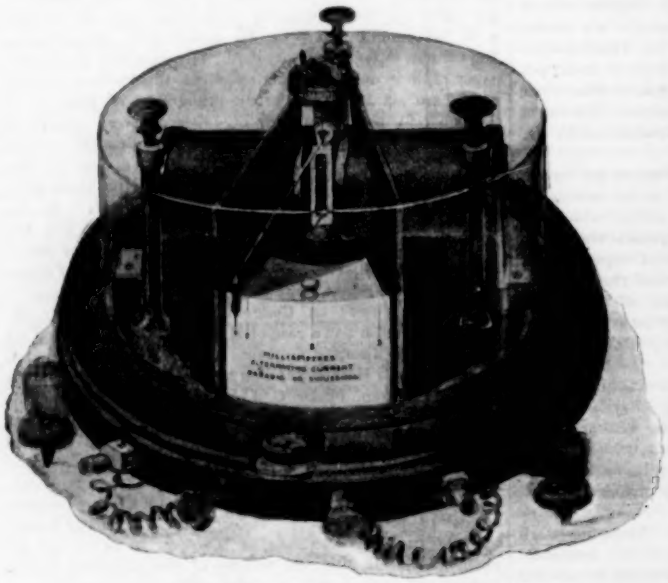
Reports of the Society for the Study of Disease in Children. Vol. I. Session 1900-1901. London: J. & A. Churchill. 8vo. Illustrated. Pp. 238. Price 12*s.* 6*d.*—The Society for the Study of Disease in Children was founded in July, 1900. All duly qualified medical men are eligible for membership and there are already no fewer than 240 members. This first volume of reports does credit to the taste of the publishing committee and the society is to be congratulated on its satisfactory inauguration. The volume is bound in red cloth, is printed on fine glazed paper, and is supplied with excellent illustrations, among which are six beautiful chromo-lithographs of tubercle of the choroid and infantile nephritis. Every report is printed in full and is followed by a detailed record of the discussion which followed the reading of the paper. At the end of the volume there is a thoroughly serviceable index of the subjects discussed. Among the more interesting and curious reports are the following:—A case of Polyuria in a child, aged three years, by Dr. J. H. Sequeira; on Multiple Subcutaneous Fibrous Nodules in an infant apparently free from rheumatism, by Dr. G. Carpenter; on Congenital Cicatrices, by Mr. H. Betham Robinson; on a case of Myxœdema in a boy, aged six years, by Dr. Leonard Guthrie; on cases of Lupus treated by Dr. Finsen's Method; and on two cases of Cirrhosis of the Liver in Children, by Dr. C. J. Macalister. The first of the two cases of cirrhosis was in a boy, aged four years, and was definitely caused by the administration of frequent doses of alcohol. This case was accompanied by much ascites and no jaundice. There were no syphilitic stigmata to be found. The parents did not deny having given to the boy frequent "nips" of spirits and beer. It seems to be generally agreed that the causes of cirrhosis of the liver in childhood are alcohol, syphilis, and the poisons of the infectious fevers. But in the second case reported there was absolutely no reason for suspecting that the child, a girl, aged 13 years, had been given alcohol at any time. "Her only previous illnesses had been chicken-pox at four and measles at six years of age. Both of these were recovered from satisfactorily and there was no indication that any of the ordinary infective fevers had started the process." There was no suspicion of syphilis in the case and the question is, What toxin could have caused the cirrhosis? This child died after an illness of rather more than a year. Post mortem there were found cell degeneration throughout the liver and intercellular as well as perilobular production of new fibrous tissue. It was a mixed type of cirrhosis. Whatever the poison might have been Dr. Macalister thinks that in the first place it was probably introduced with some article of food, and he quotes one or two other cases in support of his theory.

A PATIENT'S AVERSION TO MEDICAL MEN.—At an inquest held at Bridlington on March 10th on the body of a woman, aged 45 years, who had died suddenly, it was stated that she had persistently refused to allow a medical man to be called, stating that if a medical man attended her she would jump out of the window.

New Inventions.

THE FARADIMETER, AN INSTRUMENT FOR MEASURING CURRENTS FROM INDUCTION COILS FOR THERAPEUTIC USE.[1]

HAVING discovered early in my electro-therapeutic practice that no reliance—so far as continuity of action goes—could be placed on the results of treatment by means of the faradic or induced current, it occurred to me that this might be due to the impossibility of measuring the amount given, or even of knowing for certain that there was any current at all in operation. There being no instrument in the market capable of supplying this want I set myself some years ago to design one. The objects aimed at in the instrument were the following. 1. That it be able to show the presence and to measure the amount of the current when this was less than a sensitive part of the body, such as the brow, could detect the presence of. 2. That it be reliable, the same current always causing the same deflection of the needle without tapping to coax the needle one way or the other. 3. That the needle always and absolutely return to the zero point. 4. That variations of temperature or draughts of air have no influence in displacing the needle from the zero point. 5. That parallax be provided against, especially in very small deflections. 6. That the instrument be dead-beat. 7. That it be independent of iron cores and of permanent magnets. 8. That the instrument be portable and not require to be placed in the magnetic meridian. 9. That the resistance be moderate to allow of a fair amount of current being possible when the intensity is low. 10. That the shunts be true for alternating and not simply for continuous currents.



Faradimeter, with cover removed (half natural size).

Some of these objects have been more difficult to attain than others, but all the difficulties have now been overcome.

The faradimeter here described is on the principle of the electro-dynanometer but it gives direct readings. It indicates instantly any variation in the current. It is composed of two fixed coils, with a rotating coil between them, to which is attached the pointer. All the coils are as close as possible to each other. When the instrument has been leveled the suspended coil is turned so as to bring the needle to the zero point by means of the revolving stage from which it is suspended by about one inch of finest bronze ribbon. If the needle is not absolutely at zero a slight turn of one of the levelling screws will suffice to do this without putting the instrument off the level. Once set there is no need to repeat this, even when it is moved from place to place, unless some accident happen to it. In this case the revolving stage can be called into requisition again. It is fitted with the means of easily replacing the bronze ribbon and of lowering or raising the suspended coil so as to put it exactly into position. The current is carried off the suspended coil by means of a long spiral of finest bronze ribbon, the halves of this being in reverse directions to prevent displacement of the needle from zero under the influence of changes of temperature on the spiral. The instrument is made dead-beat by means of vanes of mica attached to a pointer fixed to the under part of the coil, and to prevent the action of internal currents of air through slight changes of temperature in the surrounding atmosphere these vanes are inclosed in a cell. So also is the indicating needle, since, though it is extremely fine, some slight deviation from the zero point would otherwise result from its exposure to internal currents as when placed near an open window. The rotating coil can be easily fixed and kept in this position so as to make the faradimeter portable which its comparatively small size renders easy. By means of two shunts the scale can be made to read up to 15 milliampères, the highest reading I find required for electro-therapeutic treatment by alternating currents; whilst as low an amount of current as one-fifth milliampère can be read off on the scale. By one milliampère faradic current I mean the electro-magnetic equivalent of an amount of sinusoidal alternating current, the galvanometric measurement of the sinusoidal galvanic equivalent of which is one milliampère. During calibration the earth's magnetism is controlled by a permanent magnet placed at the necessary distance above the coils. Three-milliampères sinusoidal galvanic current causes, I find, the amount of deflection brought about by five milliampères from a battery. If a current of definite amount from a battery is passed through a galvanometer and then through the faradimeter and the deflection noted in each it will be found, if the current is changed into an alternating one before passing through the latter instrument, that the current in the galvanometer will fall to the medium amount, whilst the deflection in the faradimeter will remain as before, thus showing that it registers the maximum current, the galvanometer registering the medium current only.

Parallax is avoided by means of two fine strips of metal rising vertically from the pointer and about one inch apart. The total resistance of the instrument is slightly over 800 ohms. The fixed bobbins have each 250 turns of No. 36 S.W.G. copper wire, whilst the moving coil has about 1000 turns of No. 47 wire. The wire for the shunts is wound inductively and horizontally immediately below the bronze spiral, so that the currents passing through them may not affect the magnetic field around the revolving coil; and, not only are the resistances proportional to the total resistance of the instrument, but the windings in the shunt coils are also proportionate in number to the total number of windings of the three coils. I have found this faradimeter of immense service and deem such an instrument absolutely essential to the proper therapeutic use of the faradic and the alternate sinusoidal currents. It has been made from my instructions by Messrs. Baird and Tatlock, Glasgow.

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[1] A paper read and an instrument shown at a meeting of the British Electro-Therapeutic Society on Feb. 13th, 1902.

THE LANCET.

LONDON: SATURDAY, MARCH 22, 1902.

The Midwives Bill.

WE published in THE LANCET last week a full account of the proceedings in reference to the Midwives Bill before the Grand Committee on Tuesday, March 11th, which terminated with an adjournment of further discussion until Friday last, March 14th. On that day the Grand Committee met again and completed the consideration of the measure. Accordingly the Bill will be reported to the House of Commons and will probably become law as amended without further delay. Accidental circumstances have combined to insure the passage of the Bill through its various stages with great rapidity, while no organised opposition was ever offered to it as a whole, or even to its manifestly objectionable clauses. All the combined working and all the enthusiasm have been on the side of the promoters; they have won and with them remain the spoils. For there is no mincing the matter, the Bill is a distinct blow to the position of medical men. Their privileges under the Medical Acts, such as they are, have to an appreciable extent been secured for a body of semi-educated women, who will be able to embark upon obstetric practice, as far as we can see, without restraint, enjoying much of the position of qualified medical practitioners.

The amendments made in the Bill during its consideration by the Grand Committee are unimportant and affect seriously none of the drawbacks to the projected legislation. An amendment proposed by Mr. PARKER SMITH, which emphasised the protection of the Bill to "midwives" by preventing uncertified persons from designating themselves "obstetric nurses," or assuming any other name properly accruing to an expert in midwifery, proved successful. The amendment received no serious opposition from the promoters of the Bill, and went far to show that the real purpose of the Bill has been as much to protect the title of midwife as to protect the parturient woman. Mr. GRIFFITH-BOSCAWEN, Sir WALTER FOSTER, and Mr. T. P. O'CONNOR tried to obtain the insertion of a clause whereby the practice of midwifery by others than women certified under the Act as midwives should be made penal, but Mr. HEYWOOD JOHNSTONE, who has served his side in the matter of this Bill with great industry and astuteness, proved too many for them. He objected *in toto* to the amendment, which was urged on the grounds recently set out in our columns, and from his point of view he was wise in doing so, for we understand that the Home Office had such an objection to the proposed addition that its introduction might have imperilled the Bill. By way of compromise on the question of an annual issue of certificates the promoters of the Bill have agreed to the insertion of a provision under which every certified midwife must give notice annually to the local supervising authority of intention to continue in practice within the area of the authority. This is an improvement, as marking some little difference in position between the medical man and the certified midwife. Sir JOHN BATTY TUKE secured an alteration in the Bill that will be of some service to the public, for owing to a successful amendment proposed by him it will be impossible after Jan. 1st, 1905, for any woman to recover fees as a midwife in a court of law unless she is certified under the Midwives Act; but a curious position obtains under this amendment, for it practically leaves persons unable to obtain remuneration legally for work which, in the absence of a penal clause, has been legally executed. Mr. HEYWOOD JOHNSTONE and Mr. SCHWANN effectively resisted a proposal to omit the invidious references in the Bill to the Royal College of Physicians of Ireland and the Obstetrical Society of London, the latter gentleman pointing out that the Obstetrical Society of London deserved recognition for its work in the matter, as its tests of candidates in the art of midwifery were more stringent than were those applied by the qualifying medical bodies to medical students. Mr. SCHWANN here took one of the numerous opportunities offered by the measure for suggesting that the certified midwife with her few months of training will be the scientific equal, possibly the scientific superior, of the medical man who is compelled by the Medical Acts to submit to a curriculum of five years' duration. An attempt on the part of Sir FRANCIS POWELL to substitute the General Medical Council for the Privy Council as the body responsible for the formation of the Central Midwives Board failed, Mr. HEYWOOD JOHNSTONE thinking that the Lord President of the Council would be able to discharge the duty put upon him, which consisted only of having a few letters written. We are not so confident. Words have been inserted to secure that before the Privy Council approves of any rules framed by the Central Midwives Board the General Medical Council shall be consulted, but precedent does not lead us to believe that much consideration will be extended to the medical view.

Presumably the end of a long struggle has been reached, for we do not see now what remains to prevent the latest edition of the Midwives Bill from becoming law. We do not think that the members of the medical profession as a whole can congratulate themselves much in the matter. A large proportion of the profession were in ignorance of the pros and cons. of the question until it became acute. That many of them, when they awoke to a sense of the importance of the issues of a Midwives Bill, were opposed to the measure is true; but opposition that would have been effective in the earlier stages proved abortive when offered in belated and fitful manner. Again, those members of the medical profession who were from the first interested in the certification or registration of midwives were sharply ranged into opposing camps. One party saw in the legislation for the regulation of the practice of midwives the creation of an inferior body of general practitioners to the defiance of the Medical Acts and the obvious danger of the parturient poor; the other party saw in the same legislative proposals a guarantee that the parturient poor would in all circumstances be able to obtain trustworthy and cleanly ministrations. Of course, each side was somewhat wrong, but neither would attempt to find a middle

way. Neither would abate a jot from the position that it had taken up, with the result that the public and the Government have shown themselves unable to attach importance to medical opinion. The General Medical Council has suffered in prestige, for, although it was generally considered to be more or less of an undertaking that no Midwives Bill would receive the support of the Privy Council unless it was framed upon lines approved by the General Medical Council, the measure that now approaches the statute-book does not contain the desiderata of the General Medical Council, and, so far as we know, has the general approval of the Privy Council. The Direct Representatives of the profession on the General Medical Council will have to explain the position to their constituents as best they can. If they cannot redeem their election pledges it is unlikely that their disability will remain concealed.

Our Medical Duty towards our Neighbour.

FROM time to time the immediate presence of epidemic disease arouses in the general public the fear of infection and to some extent teaches the desirability of sanitary precautions. The same occasions of temporary alarm, however, reveal the apparently ineradicable recklessness of a large section of the public where others only are concerned and the inadequacy of any laws to safeguard the public health as long as men and women have no desire to do their duty towards their neighbours apart from legal compulsion. The difficulty of successfully isolating suspected cases of small-pox is no doubt in many instances due to the fact that the suspected person is a worker whose presence among his fellow workers is necessary if he is to earn his wage. In such circumstances it is not surprising that the maxim of "every man for himself" is often observed with disastrous consequences; but the qualified kind of necessity that prevails in these cases is not to be found by any means in all the instances where persons have deliberately exposed others to the infection of small-pox during the present epidemic. We have narrated examples where criminal carelessness has led to the chances of spreading small-pox during the recent epidemic, and our readers know that small-pox is not the only or the most frequent pathological condition so disseminated. The publicity recently given to the result of scientific inquiry with regard to the spreading of the infection of tuberculous disease has called some attention to the filthy habit of expectorating in public conveyances, in the streets, and in other places of public resort. Newspapers and other popular publications have devoted a good deal of space to discussing the matter, and every opportunity has been given, even to persons of the class that spits, of knowing that the sputa of tuberculous persons may become a source of infection to others, but we doubt if the dissemination of such information has to any substantial extent diminished what is a disgusting act and a public nuisance, quite apart from the risk of spreading disease. The agitation may have produced notices requesting persons not to expectorate in places where such notices can to some extent be enforced, but the fact that such notices are needed at all shows how absolutely selfish certain members of the community are and how neglectful they are of the simple rule of doing as they would be done by. We will pay the persons who spit on the floors of omnibuses and other public vehicles the compliment of believing that they do not do so on the floors of their own homes, but we will ask them what their feelings would be if other persons came and squirted saliva over their boards or carpets as they do over the boards and carpets of the railway companies; and here we may point out that the persons who spit in railway-carriages are not confined to the class whose homes are destitute of carpets.

In preventing the spread of infectious disease the community is to some extent aided by the law that compels the notification of certain disorders and imposes penalties upon persons suffering from them who expose others to the risk of infection in certain obvious ways. A large number of persons, however, regard the precautions imposed by law as embodying the maximum of care that they need show for others; and the attitude of many parents in the humbler classes of society whose children have suffered from such diseases as scarlet fever and measles is one of indifference as to whether their neighbours suffer in a similar way or not. They reason that as they have had the trouble and inconvenience of having their own children laid up, it will only be an equal distribution of the ills of life if those around them undergo the same affliction. Any obligation on themselves to go out of their way to prevent, if possible, such a thing from happening, because it is their duty to think of, and to protect, others, they ignore or openly deny. The kind of duty of which we are speaking—which we may call our medical duty towards our neighbours—is still more often disregarded by members of all classes, when there is no question of existing disease that may be disseminated. The persons who in the disposal of house refuse only consider how they may in the easiest way get rid of it without detection and interference on the part of some sanitary authority possibly regard the law, but they very often neglect their duty. Every piece of waste land in or near a town testifies to this neglect, just as every reach of the Thames above London bears similar evidence in spite of the vigilance of the river commissioners, and in spite of the obvious wickedness of fouling a noble river. In the preparation of food-stuffs a similar course of conduct shows itself and is from time to time demonstrated in our police-courts, whether the question is one of adulteration merely or of the sale of food positively dangerous to health. Very often it is shown that there has been no deliberate intention of making money out of a commodity known to be unfit for human food. The most frequent plea for a mitigated penalty is the one that rests on the allegation that the defendant never saw the stuff that he offered for sale and knew nothing about it. Carelessness and selfishness lead to an obvious neglect of medical duty.

It would not be difficult to give many more examples all bearing upon the same point and showing how often men and women place others in danger without compunction, whereas they themselves, if they suffered from similar conduct, would be loud in their complaints of their neighbours. So far as the law goes it protects us from our neighbours and its sphere of authority is constantly being extended; but those whose duty it is to enforce the law cannot be present everywhere or omniscient. These are days of extended

and extensive education, and it is much to be wished that the teachers of the young should at all convenient seasons, whether in the course of religious or of lay instruction, instil into their minds the duty of protecting others even to their own inconvenience. With the inculcation of a sense of such duty increased knowledge of the sources of disease and the possibilities of sanitary science would be of more avail. At the present time, through the ignorance of some and the callousness of others, disease is spread in all populous centres in a terrible, because in an entirely unnecessary, manner. We cannot help thinking that the board schools might well come to the rescue of the community with a little plain talk to their charges.

Varicose Veins.

THE Lettsomian Lectures of the Medical Society of London were established in 1850. They are always intrusted to some distinguished Fellow, and this year the lecturer was Mr. A. PEARCE GOULD. It is generally understood that the subjects of these lectures are intended to be as practical as possible, and Mr. PEARCE GOULD'S choice of the subject of varicose veins for his first lecture (which was published in THE LANCET of March 1st, p. 576) was very happy. It is a disease which is exceedingly common, obscure in its origin, and but little amenable to the many methods of treatment adopted. Many who suffer from varix are in good, even in robust, health. This fact is against the condition being a degeneration. Much importance in the production of varix is usually attributed to obstruction to the return of venous blood as by pressure on the larger veins. Mr. PEARCE GOULD does not assert that pressure has no effect, but he believes that it is unworthy of being considered in comparison with other factors. He showed that in the vast majority of cases varicose veins first appear before growth is complete; thus out of 50 consecutive cases of varicose veins coming under his observation the condition was manifest before the age of 25 years in 41, that is to say, in at least 80 per cent. of cases the varix appeared before development was complete. Now, as it is certain that venous obstruction does not predominate during adolescence, hindrance to the venous circulation cannot, he argues, be an important factor in the production of varicose veins. Another argument on which the lecturer rightly laid stress is the conspicuous absence in this disease of all the usual signs, symptoms, and consequences of venous obstruction. Œdema, lividity, and impairment of function are rarely seen in varix, while in cases in which undoubted venous obstruction is present—as, for instance, when a bandage has been applied too tightly—discomfort immediately follows, the whole limb becomes obviously congested, and œdema rapidly supervenes. Further, the operative treatment that is usually adopted for varicose veins—namely, ligature or excision—is itself a potent argument against the obstruction theory, for, if obstruction is the cause, to excise the varix or to ligature the main cutaneous vein above must be an utterly irrational procedure, yet all surgeons will acknowledge the value of both of these measures.

Of all the suggested causes of venous obstruction leading to varix pregnancy holds the most conspicuous place, but Mr. PEARCE GOULD pointed out that in most cases careful inquiry will elicit the fact that the enlarged veins had been noticed in early life before marriage, but that the patients had never been troubled by them until pregnancy occurred. The important vaso-motor disturbances which are produced in some women by pregnancy show how greatly the vascular system can be affected by this condition. Therefore we need feel no surprise that the veins should suffer also, quite apart from any pressure on them. Large tumours of the ovary and uterus probably cause quite as much pressure on the iliac veins as does a pregnant uterus, yet they are much less frequently attended with troublesome varix of the lower limbs. There is, however, a still more forcible argument against the pressure theory, and this is to be found in the relative proportions in which the sexes are affected with varicose veins. We find that, according to Mr. PEARCE GOULD'S figures, of 245 cases, made up of cases seen in private and cases seen during the last six years in hospital practice (cases of varicocele being excluded), 153 were men and only 92 were women. Of course, if the cases of varicocele had been added the excess of male patients over female would have been greatly increased. The rôle, therefore, of pregnancy in the production of varix must be unimportant. If, however, we are compelled by facts to throw over the obstruction theory of the etiology of varix, what can be put in its place? Mr. PEARCE GOULD answers that varicose veins are venous overgrowths—that is to say, venous angeiomata. He brings forward cases which demonstrate that even in the latter half of life veins may form, constituting what may be called a "venous angeioma," while in evidence that varix is really a variety of angeioma he quotes many proofs. In the first place we occasionally meet with combinations of undoubted venous nævus and varix; and there are other cases in which we might hesitate as to which term should be employed, or in which, indeed, either might be used with perfect propriety. Secondly, the irregular distribution of varicose veins is much in favour of the view that we are dealing with an over-development of the venous tissue. A further proof is to be found in the distinctly hereditary character of varix, which may, indeed, in some cases be traced through three generations. Moreover, in the majority of cases an extreme degree of varix persisting for many years is quite compatible with unimpaired function and structure of the parts from which the varicose veins receive their blood. Mr. PEARCE GOULD considers that the minute structure of a varicose vein, containing as it does an increase of muscular tissue, is in favour of the developmental theory—the theory, that is, that varices are essentially the result of an over-development of venous tissue. We must acknowledge that these arguments are of great weight and go far towards establishing the lecturer's contention.

The latter half of the lecture dealt with the question of treatment. In 1891 TRENDELENBURG of Bonn introduced a novel method of treating varicose veins by ligature of the great saphena vein in the upper part of the thigh. He showed that the enlarged veins filled from the proximate end and that pressure over the great saphena prevented the blood from entering them. The operation has been widely practised, but opinions are divided as to its value. Mr. PEARCE GOULD published in 1899 the results of his first 50 cases after

TRENDELENBURG'S operation, and at the lecture he presented a table showing the present condition of the patients in all the cases operated on since, so far as they had been seen or reported on. These were 50 in number, and they showed clearly the beneficial effect of the operation in most cases. Except in two instances all the patients expressed themselves as being in less pain than before the operation; in no case had any increase of the varix occurred, and the tendency to thrombosis was greatly lessened. The lecturer summed up his remarks on treatment by saying that in TRENDELENBURG'S operation we have a simple and safe proceeding and one very useful in nearly all cases of varix. In conclusion we may add that the lecture was an excellent illustration of the light which may be thrown on a subject generally supposed to be fully understood by a careful consideration of facts and logical deductions from them.

Annotations.

"Ne quid nimis."

THE NATIONAL PHYSICAL LABORATORY.

RATHER more than 30 years ago the suggestion was made by Lord Kelvin that the nation should possess a physical laboratory in which standards could be preserved and the work of standardisation carried on. The opening of the National Physical Laboratory at Teddington by the Prince of Wales on Wednesday, March 19th, marks the consummation of this valuable suggestion, although the equipment of some departments is not yet complete for want of funds. The work which this institution will undertake is of the most important kind. It will relate chiefly to the standardisation and verification of instruments and the determination of physical constants. Ample scope for the investigation of certain industrial problems in which the application of scientific study and research is indicated will be afforded as the income of the institution will allow. The Government has granted £14,000 for fitting up Bushy House (an old Royal residence) for the purpose and a maintenance of £4000 a year. It is believed that the house is remote from external physical disturbances, special attention having been given to isolating the building for the purpose of conducting electrical and magnetic measurements. It is to be hoped that the lack of funds owing to which the equipments in some respects are deficient will soon be made up and that the nation will by its practical help realise the importance of such an institution being maintained in an efficient state.

THE METROPOLITAN WATER-SUPPLY.

THE report of the Water Examiner on the condition of the metropolitan water-supply during the month of January last has at length been published. The Thames water at Hampton, Molesey, and Sunbury was "more or less coloured" from the first to the seventh day of the month and was described as of "indifferent" quality during that period by the engineer to the Chelsea Company. The height of the river varied between a point one foot above and one seven inches below the average summer level. The daily average amount of water distributed by the eight companies was 198,233,165 gallons for a population estimated at 6,314,223, which represents a daily consumption per head of 31·39 gallons. The companies which deliver less than this amount daily per individual are the Kent, the New River, and the East London; the others deliver more. During the month of January, 1902, the New River and the Lambeth companies distributed a larger quantity of water per head to their customers than they did in the corresponding month of the year 1901; each of the other companies delivered less per head than during the earlier period. The Lambeth Company's water on Jan. 1st, 3rd, 6th, and 8th was slightly opalescent. The water of the Lambeth Company also exhibited "the deepest average tint of brown." Dr. T. E. Thorpe, F.R.S., the analyst to the Local Government Board, reports that he made a full analysis of one specimen each of water derived from the mains of each company. The samples were taken on Jan. 20th—a date on which the Thames water was not in a "bad" or "indifferent" condition. The proportional amount of organic impurity found in the samples examined is numerically represented as follows:—Kent Company 1·1, New River 1·4, Lambeth 3·4, Southwark 3·6, Grand Junction 4·3, West Middlesex 4·5, East London 5·0, and Chelsea 5·3. There is one paragraph of the Water Examiner's report which as it stands is incomprehensible or incomplete. It is as follows (p. 5): "The river intake of the filters of the Southwark and Vauxhall Company at Hampton was closed from the 1st to the 8th of the month inclusive"—that is readily understood: the engineer to the Southwark Company preferred not to introduce flood water directly to the filter-beds. The paragraph continues, "And the intake of the Lambeth Company was also closed from the 6th to the 18th inclusive." If this be so the intake was closed for 13 days. The reservoir storage capacity possessed by the Lambeth Company is stated on the next page (p. 4) to be sufficient only to contain a supply for 4·6 days—indeed, not sufficient for that time, because (p. 4) "for several reasons the reservoirs cannot be drawn down to the limit of their capacity, and the available storage may be taken at about 15 per cent. less than that above stated." For over a year this little explanation has appeared monthly—perhaps it is not too much to hope that some day the Water Examiner may give as accurately as possible the available capacity of the reservoirs of each of the metropolitan water companies. The question which more immediately excites our curiosity is, Where and by what means did the Lambeth Company obtain water from the 6th to the 18th of January last (both days inclusive)?

UNAVOIDABLE ERROR.

THE following story, which we quote from the *Times* of March 10th, was told at the Thames Police-court. It is quite probable that upon investigation it may have been found inaccurate in its details, but it suggests some of the hardships that arise almost unavoidably when dangerous infectious disorders break out among the poor. A man had been living at some model dwellings at Bow and some time ago was suffering from a cold, but by some means it got about that he was suffering from small-pox. By order of the local authorities he was removed to the small-pox hospital and after being detained there for some days he was allowed to go as there was nothing the matter with him. On returning to his rooms he found that all his things had been removed and destroyed and he now wanted to know who was responsible for the loss which he had sustained. The magistrate is reported as saying that he was unable to answer the question, but that he advised the applicant to see the local authorities. Probably Mr. Dickinson felt that, as we have suggested, the facts of the case were not fully before him. The Public Health and Infectious Diseases (Notification) Acts contain provisions designed with a view to protect the public at large when individuals are found to be suffering from dangerous infectious disorders, but certainly without any desire to inflict unnecessary hardship on the sick

persons. The local authority may direct the destruction of bedding, clothing, or other articles which have been exposed to infection from any dangerous infectious disorder, but it is also empowered to give compensation for the destruction so wrought. We do not believe that such compensation would or could be refused because it was discovered that the destruction was not required owing to there having been in point of fact no exposure to infection. With regard to any distress or inconvenience entailed upon the individual wrongly suspected and removed, but not in fact suffering from a dangerous infectious disorder, some distress and inconvenience must necessarily, we fear, be borne at times by individuals if the public is to be protected. Those locally responsible for the public health have certain powers given to them which enable them to take charge of persons suffering from specified disorders who are without proper lodging and accommodation. In such cases action is only taken on the certificate of a legally qualified medical practitioner, and, apart from any negligence, it is not easy to see any legal grounds upon which compensation might be claimed from the sanitary authority as such. On the other hand, members and officials of local authorities and persons acting under the directions of local authorities are protected from personal liability for acts done by them *bonâ fide* for the purpose of executing their duties under the law, and, apart from negligence, we do not understand how the person in whose case a mistake has been made can have any claim against individuals. Still, such cases as that to which we have referred are hard cases when they occur, and it is dispensing cold comfort to hint to the man who has been taken from his home unnecessarily that he owes it to vaccination that he has been in a small-pox hospital without contracting small-pox. That mistakes in the diagnosis of small-pox must inevitably occur needs no demonstration, but we may call attention to an answer given by Mr. Long to a question in the House of Commons on March 10th. The right honourable gentleman stated that in Bethnal Green in January and February 136 cases were reported, which presumably means certified, as small-pox, and that in 13 cases it was found that mistakes had been made. This, however, does not imply that the cases so reported were dealt with as small-pox cases before the error was discovered, nor does it mean that there was any negligence or default of any kind on the part of those by whom, or through whom, the reports were made. Such mistakes, moreover, however much they are to be regretted, are, to use a popular expression, "mistakes on the right side," and are not so dangerous to the community at large as are those which leave persons who are suffering from small-pox to be sources of infection to all around them.

LIGHT AND MALARIA.

THE demonstration of the plasmodium as the *vera causa* of malarial fevers and the successive sporulations of the parasite as the exciting causes of the paroxysms have exploded many popular and traditional beliefs and have explained those that experience has established as to the conditions under which these diseases prevail and the means by which they may be prevented, as being simply such as are most favourable to the multiplication of the anopheles and such as tend to its extermination. But there are still some facts hitherto unexplained pointing to conditions connected with solar phenomena, and not unnaturally ascribed to the sun's heat as the most obvious and palpable of these. But it is not easy to imagine how the parasite can be influenced by external temperatures, since it is itself in a medium, the blood, which is not affected thereby, the pyrexia of the paroxysm being the effect, not the cause, of its intermittent activity. In the *American Journal of the Medical Sciences* for February Dr. A. F. A. King of New York puts forward an ingenious suggestion that the actual factor in question is the light, not the heat, of the sun, and that the relative immunity of the very dark and black races of man is due to the lesser translucency of their skins. Celli and Tacchini had noticed that the years in which the fevers were most severe in Italy were by no means the hottest, though the number of cloudless days was above the average. Jackson remarked that in Jamaica a camp over which a fog hung all day suffered less than did those apparently better situated, and the beneficial effects of several days of heavy rain have often been noticed. Flint states that paroxysms very rarely occur at night and that, recurring some hours later each successive day, when they fall after dark they are usually deferred to the following morning, when they may sometimes be avoided by the patient lying in bed through the day. The experiments of Harrington and Leaming on the common amœba lend considerable support to this hypothesis, for they found that the amœbæ "streamed" under the influence of bright sunshine, but still more actively when exposed to red light, whereas the process was arrested in the darkness and was completely inhibited by the violet and ultra-violet rays. Since the skin of all but the blackest races, and especially that of white men, is more or less translucent, it is evident that blood parasites may be susceptible to the influence of the light of the sun, though protected by the constant heat of the body from that of external temperature, and that it is chiefly the red rays that can reach them through the medium of the blood. Until it shall have been proved that the blood of the negro is darker than is that of the white man, and that the colour of the latter can be perceptibly altered by practicable dosage with methyl blue or can be made fluorescent by the administration of quinine, we must forbear following Dr. King in his speculations on these points, but we think that he has made out a fair case for his light theory and for the trial of what may be called "scoto-therapy" in the treatment of malarial fevers—that is, of keeping the patient in a dark room and in the intervals between the attacks of clothing him in garments with linings impenetrable by light.

OLD MEDICAL PUFFS.

THE recent controversy on the impropriety of advertising the name of a medical man without his knowledge raises again the whole question of medical advertisements. In certain of its aspects, at least, medical etiquette is undoubtedly in process of growth even now, and in the absence of definite evidence wonder may be expressed whether, as a whole, it has arisen, like the Common Law, from humble Anglo-Saxon beginnings, or whether, like a creed, its essentials come to us stereotyped out of Latin and Hellenic antiquity. Supposing the medical code of honour to be, so to speak, progressive, then it follows that there was a time when medical ethics permitted puffery. Certain it is that old newspapers abound in medical puffs which in many cases emanate from seemingly respectable sources. The question is, How were these puffs viewed by the medical men of the day? Were they considered venial or disgraceful? Dr. James's "Fever Powders" were regularly vaunted in print, as poor Dr. Goldsmith found to his cost when he insisted on taking them contrary to his apothecary's advice. Oliver Goldsmith died from fever, and James's powders were especially recommended as "a most effectual Remedy for all internal Inflammations, Pleurisies, Quincies, acute Rheumatisms, and the Lowness of Spirits, and Uneasinesses proceeding from slow and latent Fevers, which are generally mistaken for Vapours and Hysterics." Thus ran Dr. James's advertisement as set forth by the firm of Newbery. Dr. Johnson said of James, who was a Fellow of the Royal College

of Physicians and a Doctor of Medicine of Cambridge University, that "no man brought more mind to his profession," and it is a question whether the man thus appraised really lost caste, as his biographers aver, by first patenting and then advertising a drug. Certain it is that he was struck off no books, and Dr. Johnson, that model of scrupulous honour, was his friend to the last. Was he even censured for making a false specification in his patent? And what was the state of professional feeling which permitted a Doctor of Medicine to publish a "Vindication" of his powders? In the seventeenth century advertisements setting forth the merits of medical graduates and other apparently reputable persons were common in the journals. In the *True Domestick Intelligence* for March, 1680, we find Thomas Kyrle issuing an extraordinary manifesto which begins, "The old and true way of practising Physick revived and published for the publick good." The puff, which is very long, describes his system of charging fees only in case of cure, his readiness to treat the poor for "thanks" only, and so on. The price of his doses is given and his address, "the first balcony" in a certain city lane. And this man, Thomas Kyrle, or Kirleus, was no quack, but Charles II.'s "sworn phisitian in ordinary," and he issued his statement, as he avers, under the seal of the College of Physicians and with their approval. In the "twenties" and "thirties" of the century just passed these medical declarations to the public seem to have been still quite in vogue. An old newspaper cutting now lying before us "respectfully informs the public" that a Member of the Royal College of Surgeons in London "has had more than 30 years' practice in midwifery, and has paid particular attention to the operative department of surgery," including the successful treatment of hare-lip and ulcers in the legs. On the other hand, it is noticeable that several satirists in the eighteenth century and earlier make no mention of printed advertisements. In his brilliant "Dose for the Doctors" (1789) "Gregory Glyster, an Old Practitioner," most maliciously and wittily suggests a dozen ways in which a medical man may puff himself without seeming to do so, but print is not one of them, though ornamental door-plates and exaggerated medical degrees are duly recommended. Again, writing in 1651, Robert Record reprints in a slightly modernised form "A Detection of Unskilfull Physitians," which is reported to be the work of a Salisbury doctor in Queen Elizabeth's reign. And here again printed puffery is not hinted at, although the country is said to be infested by a "sort of fellows, which nowadays almost in all places so rashly, so fondly, and so wickedly do abuse the noble Art and Science of Physick."

WOOLWICH AND THE HOUSING OF THE WORKING-CLASSES.

DR. SIDNEY DAVIES, the medical officer of health of the borough of Woolwich, has issued a "Further Report to Housing of Working-Classes Committee on Overcrowding and the Population requiring Re-housing in the Borough of Woolwich." The facts disclosed by this report are by no means creditable to the civilisation of the twentieth century. Houses are difficult to obtain in the district under Dr. Davies's charge for two reasons. First, there is a definite lack of houses, and, secondly, people with large families are very often refused as tenants, even though they can pay the high rents demanded. This lack of houses reacts unfavourably on sanitation because, says Dr. Davies, "Landlords who only look to their rents are careless as to the complaints of tenants as to defects in a house, knowing that however bad its condition it is sure to be reoccupied as soon as it is empty. The health authority and its officers hesitate to take steps for closing a house which is sanitarily unfit for occupation, knowing that the displaced tenants may be unable to find adequate accommodation elsewhere. 'A bad house,' it is sometimes said, 'is better than no house at all.'" It may be said that there is a certain class of tenants who are most destructive and who think nothing of tearing down sanitary fittings for the purpose of selling them as old metal. The damage done by such is, however, in no way comparable to that done by the bad landlord. He it is to whom are due the horrible overcrowding, the one-roomed tenements and the immorality and vice which are the inevitable accompaniments of such overcrowding. For a four-roomed house he will draw over £30 per annum in rent and a court or street of such houses will be a veritable focus of disease affecting the neighbourhood far and wide. When matters get to such a pitch that after great difficulties his property is ordered to be destroyed he is bought out at a high rate and goes away to buy or to build further fever dens.

VACCINATION DIFFICULTIES.

IN THE LANCET of March 15th, p. 761, we commented upon sundry matters concerning vaccination and public vaccinators at Helston. The town council had issued bills pointing out the advantages of vaccination and revaccination and intimating that anybody who wanted to be vaccinated could be vaccinated by the public vaccinator, whose name was given. It is obvious, as we noted, that in a case such as this every care would have to be taken that the public vaccinator did not attract other practitioner's patients. In this instance, however, the public vaccinator had nothing to do with the issue of the circular. A correspondent has forwarded for our inspection a circular signed by a practitioner who is medical officer of health of a certain urban district council. The circular points out the advantages of vaccination and revaccination. Our correspondent, though, writes to us that he considers the issue of the circular very unfair to himself and to other men in the district, for the medical officer of health in question is in private practice. We think it would have been better if it had been made plain that the circular in question had been issued by the urban district council, for though it apparently only emanates from the medical man, yet we can hardly suppose that he, not being a medical officer of health who is not allowed private practice, would send out such a circular on his own initiative. Possibly the difficulty might be got over by making every medical man a public vaccinator, and this course has been recently urged by the adoption of the following resolution by a meeting of the council of the Lancashire and Cheshire branch of the British Medical Association :—

> That in the opinion of this council, seeing that vaccination is made compulsory, in the interests of the public health, the parent or guardian of a child should have the right to select any registered medical practitioner, who is willing to do so, to perform the vaccination, and that the cost of the same should be defrayed by the State at a fixed rate, provided always that the work so done shall reach the standard aimed at by the Local Government Board in the case of public vaccinators, and that no work falling short of this standard should be accepted for the purpose of public remuneration.

The matter is one which presents many difficulties. Vaccination and revaccination should be indefatigably preached. It is the duty of all health authorities, of individual medical men, and of the clergy to impress people with the value of the practice; but individual medical men must be careful to avoid any appearance of wishing to draw away the patients of their brother practitioners. With regard to the position at Helston, at the meeting of the Helston Board of Guardians held on March 15th it was decided to ask all the public vaccinators to continue to act on their old contracts. The guardians at first wished the public vaccinators to provide all extra calf-lymph at their own expense, but these gentlemen declined to accept these terms and consequently the guardians decided to pay for all such extra lymph. The clerk was instructed to write to all the public vaccinators rescinding the notice to determine

their existing contracts. A letter was received, signed by all the public vaccinators, drawing attention to some remarks which the chairman was stated to have made at the last meeting and requesting an apology. The chairman stated he had no intention of hurting the feelings of these gentlemen and he was very sorry if he had done so.

THE CHELTENHAM EAR, EYE, AND THROAT HOSPITAL.

AT the annual general meeting of subscribers to the above institution held on March 5th two very important motions were carried. The first was as follows: "That the hospital in future shall be a free hospital." The motion for this purpose was introduced by Mr. G. A. Cardew in an admirable speech. "If," he said, "subscribers asked, 'What shall we get for our subscriptions?' we can reply, 'Exactly the same as before, except that you will be able to send in patients regardless of time and not have to tell them to wait until your next stock of tickets arrives.'" We like Mr. Cardew's cheery optimism, for there is a class of subscriber who will think: "What good do I get by subscribing when anyone else who does not subscribe can recommend patients as well as myself?" However, this class of subscriber is rare. We congratulate the authorities of the hospital on their decision. The other important resolution at which the meeting arrived was to appoint a resident medical officer. The brunt of the work, exclusive of dental matters, has hitherto been borne by Dr. J. A. Bower, the honorary surgeon, although he has had the assistance of Mr. C. E. Abbott as anæsthetist and in a measure as assistant surgeon. Every hospital should, however, in our opinion, possess a resident medical officer, and we earnestly hope that the additional £200 per annum, which the appointment of such an officer will involve, will not be sought for in vain.

THE HEREDITARY SEQUELÆ OF ALCOHOLISM.

DR. T. D. CROTHERS of Connecticut contributes to the January number of the *Quarterly Journal of Inebriety* a valuable preliminary report on Heredity and Alcoholism, containing some of the main conclusions reached by a committee of physicians which was appointed at a Medical Temperance Congress held in the United States in 1888 and of which he was chairman. The collection of material for the report, says Dr. Crothers, has gone on during 13 years, and up to the date of publication of the article fairly accurate histories had been collected of 1744 cases of inebriety. The majority of these cases (about 1300) had come under Dr. Crother's personal care and observation. The facts were carefully ascertained and collected, and the inquiry was not limited to heredity alone but included "every condition and circumstance which could have an etiological bearing in the development of inebriety." In a few cases the existence of inebriety or of mental disorder in the parents was carefully concealed and had to be ascertained indirectly, or was at first denied and subsequently disclosed. "The central conclusion, which cannot be stated too strongly," says Dr. Crothers, "is that the injury from alcohol to the cells and nerve-tissues is transmitted to the next generation with absolute certainty in some form or other"—i.e., as a drink craving, a neurosis, or a mental defect. Of the 1744 inebriates with trustworthy histories 1080 had a direct history of alcoholic heredity; 390 cases were traceable to bodily diseases, injuries, or shocks; 180 were attributable to starvation and poisoning; while 85 cases were due to ignorance, bad surroundings, and imitation (mental contagion). In only the remaining nine cases were the causes so complex or so obscure that no classification could be made of them. Regarding the 1080 patients with a direct alcoholic heredity Dr. Crothers writes: "In most [of these] there seemed to be largely transmitted a special predisposition to find relief in spirits, or a mental diathesis (instability) with want of self-control, and often a species of psychical pain and unrest which found greatest relief from the use of spirits." In 430 of these patients there was hereditary transmission of the drink craving from the parents and in 224 from the grandparents (atavic heredity), while in 290 cases some degree of psychopathic heredity or mental abnormality could also be traced in the parentage. While a study of the family records of these cases show that some members of these families were endowed with ability and even brilliancy in the fields of theology, politics, music, law, and art, many others showed criminal or vagrant tendencies or were otherwise mentally and morally defective, and sank rapidly into the lower strata of social life. In 49 instances the inebriates belonged to the "epileptoid" class both as regards personal symptoms and hereditary antecedents. Such persons were characterised by "alcoholic outbreaks of stormy or cyclonic development," not necessarily or strictly periodic, developing suddenly and disappearing with little or no trace behind. "The ancestors of these persons were always noted for their sudden explosive nerve-energy ..... persons whose whole conduct throughout life was an alternation of wild extremes, ... continually changing in politics, in religion, and in business, ... always leading forlorn hopes and always defeated, physically suffering from disease and making remarkable recoveries, at one time using spirits, then changing to other remedies, and always under an obsession." Among the female members of these families were many neurotic individuals addicted to drugs, Christian scientists and faith-curers, and mental or moral invalids given to secret drinking. Finally, various groups of inebriates were met with who either took to drinking, as though driven by fate, at the same ages when their parents took to drink, or who manifested precocious sexual instincts or an abnormal craze for food as well as drink, or who readily became addicted to the morphia habit. The far-reaching morbid effects of alcoholism were thus clearly proved.

ARSENIC IN BEER AND IN REDUCED IRON.

ON March 10th Dr. E. S. Reynolds of Manchester gave some interesting evidence, which we reported last week (p. 786), before the Royal Commission on Arsenical Poisoning. Manchester and its neighbourhood contain large numbers of important breweries which used arsenical glucose and invert sugar supplied during 1900 by Messrs. Bostock and Co., and, as is well known, Manchester suffered most severely during the epidemic of arsenical beer poisoning which then occurred. It was to be expected that during the interval which has since elapsed no precaution would be omitted which Manchester brewers could take to eliminate arsenic not merely from brewing sugars but from malt which in certain neighbourhoods owing to the fuel used appears to be capable of taking up arsenic. This seems to have been the case, and Dr. Reynolds testified that in some Manchester beers no arsenic can now be found by the most delicate test, while the highest quantity has been under $\frac{1}{10}$th of a grain per gallon. Dr. Reynolds, to whom belongs the credit of first discovering the cause of the Manchester outbreak in 1900, informed the Commission that alcoholic neuritis, as understood for years in Manchester, has almost disappeared, and that skin pigmentation and herpes, formerly common in cases where neither arsenic nor alcohol was suspected as a cause, have largely diminished; and he added the interesting observation that cases of "alcoholic heart," to which a great deal of attention has been paid in Manchester and which has formed the subject of several monographs, can now no longer be found at all. It is evident, however, from the facts reported by Dr. J. F. Hodgson regarding cases at Halifax, that similar freedom of beer from arsenic has not been

secured everywhere in the country. Dr. Reynolds urged the necessity of very close observation of cases of peripheral neuritis for the detection of two symptoms which may be considered specially to point to arsenic—pigmentation and keratosis. He also drew attention to the large quantity of arsenic sometimes present in reduced iron—B.P. ferrum redactum in some cases having been found to contain as much as 1 per cent. of arsenic. Many practitioners have found special advantage from administering iron in this form in cases of anæmia, and it is possible that this beneficial result arises from the fact that with every grain of reduced iron a dose equivalent to a minim of liquor arsenicalis is administered. The possibility, at any rate, deserves to be noted.

THE INTERNATIONAL CONGRESS OF GYNÆCOLOGY AND OBSTETRICS.

THE Fourth International Congress of Gynæcology and Obstetrics will be held in Rome under the patronage of the King of Italy from Sept. 15th to the 21st, 1902. The subjects on which papers are to be read are—(1) Medical Indications for Interrupting Pregnancy; (2) Hysterectomy for Puerperal Infection; (3) Genital Tuberculosis; and (4) Surgical Treatment of Cancer of the Uterus. The general president is Professor Ercole Pasquali of Rome; the presidents of the obstetrical and gynæcological sections are respectively Professor Morisani and Professor Mangiagalli; the general secretary is Professor Ernesto Pestalozza, 60 Via Alfani, Florence; the treasurer is Dr. C. Micheli, 127 Via Rasella, Rome; and the honorary secretary for Great Britain and Ireland is Dr. William J. Gow, 27, Weymouth-street, London, W. The membership subscription, including the right to receive the printed transactions of the congress, is 25 lire (£1). Relatives of members will be admitted to the official entertainments on the payment of 10 lire (8*s*.). These sums may be sent either to Dr. Micheli or to the secretaries for the countries to which members belong. The time assigned to each paper is not to exceed 15 minutes. Intending readers of papers are requested to send the titles, and if possible short summaries, to the general secretary before the end of May.

THE COAL SMOKE ABATEMENT SOCIETY.

THE third annual report of this excellent society shows an increase in good work of which the society may well be proud. We are pleased to see that the borough councils are more alive to the nuisance of foul, dirty smoke than were the old vestries. Still, they might accomplish even more than they do. For instance, 225 nuisances were reported to the Public Health Committee of Chiswick, but only eight summonses were issued. The Coal Smoke Abatement Society at present has two inspectors working under it and the council of the City of Westminster has appointed two of its own. We advise everyone to join this society and to read the report of Sir William Richmond's speech at the annual meeting of the society which was held on Nov. 20th, 1900, at Grosvenor House. There the reader will find facts and figures, some of which we have quoted above, which will make him grateful to the society and profoundly disgusted with magistrates and local authorities. The latter, though less apathetic than the vestries are still not as active as they might be and the former inflict most inadequate fines. As we have pointed out over and over again the excuse about not being able to get Welsh coal is nonsense. If manufacturers like they can easily make their furnaces smokeless. When they find that it is better for their pockets that the furnace should be so they take steps to make it smokeless, as in the case of the Nottingham lace makers. If, then, magistrates will only fine all offenders as heavily as possible the said offenders will manage to get smokeless furnaces, and we shall be spared such days as March 6th and 11th, when London resembled portions of the Underground Railway in its worst days.

SMALL-POX IN LONDON.

THE returns for the past week show the following figures: on Saturday, March 15th, there were 43 fresh cases notified and removed; on Sunday, the 16th, there were 45 fresh cases; on Monday, the 17th, there were 82 fresh cases; on Tuesday, the 18th, there were 52 fresh cases; and on Wednesday, the 19th, there were 71 fresh cases.

POST-MORTEM EXAMINATIONS IN UNION HOSPITALS.

AT the weekly meeting of the Lurgan Board of Guardians held on March 6th one of the members of the board complained that the medical officers of the workhouse had been in the habit of making post-mortem examinations. The medical officer of the workhouse hospital, Dr. J S. Darling, having been sent for, said that post-mortem examinations were occasionally held on patients who had died there. He had no explanation to offer; if the cause of death was a doubtful one and where the patient had no friends he made a post-mortem examination. He had made six during the past six months and three during the past month. There might be months without such an examination being made, but it was never done with annoyance to any friends. On being asked if he would refrain from making necropsies, Dr. Darling said that he would if the guardians made an order and the Local Government Board sanctioned it. If the board of guardians left the matter in his hands it would only be in exceptional cases where there was a genuine need that he would make a post-mortem examination. Notwithstanding this extremely fair promise the guardians decided by a large majority that no more post-mortem examinations should be held unless with the consent of the board. It is a great pity that the medical officer of the Lurgan workhouse hospital should be hampered in his efforts (in which, we are informed, he has always considered the feelings of the friends of patients) to verify the diagnosis of disease by post-mortem examination. Without such a method the science of medicine would soon come to a complete standstill.

ACHONDROPLASIA.

IN the March number of the *Polyclinic* an interesting account of a case of achondroplasia is contributed by Mr. James Cantlie. The patient, a girl, aged 13 years, presented the usual symptoms of conspicuously short upper and lower limbs. When she sat by the side of a healthy well-grown girl of normal development the two girls appeared to be of about the same height, but when they assumed the erect posture there was a great disparity on account of the shortness of the patient's lower limbs. Similarly her upper limbs were greatly wanting in length, the tips of the fingers, as the arms hung by the sides, hardly reaching below the iliac crests. Her head appeared to be relatively large, but it was to the defective elongation of the limbs associated with a trunk of approximately normal size that she owed her peculiar aspect. Mr. Cantlie points out that achondroplasia, though sometimes described as fœtal rickets or fœtal cretinism, is essentially distinct from either of those conditions. His patient, though helpless in many particulars because of the maldevelopment of her limbs, was a very intelligent girl whose facial aspect and general bearing were far removed from the mental dulness of cretinism. Achondroplasia is an arrested development in certain portions of the bony skeleton, the parts affected being those which are normally ossified in cartilage during the earlier months of fœtal life. Bones

resulting from ossification in membrane are formed as usual, and the same is true of those which, formed in cartilage, remain mainly or entirely cartilaginous until after the sixth month or so of fœtal life. But the parts which are ossified in cartilage in early fœtal life are stunted in their development, as if from premature arrest of the ossifying process. This defect applies to the long bones of the limbs, the ribs, the pelvis, and the greater part of the base of the skull.

THE DISTRIBUTION OF PLAGUE.

DURING the week ending March 2nd 15 cases and 8 deaths from plague have been reported throughout all Egypt. 7 cases and 3 deaths occurred at Tantah, 1 case was admitted to hospital at Abusir, 1 at Kom-el-Nur, and one at Mit-Ghamr. 4 cases and 4 deaths occurred in villages near Zifteh and 1 death out of hospital at Mehallet Abu Aly near Mehalla Kebir in the Gharbieh province. The disease shows a tendency to spread in some of the outlying villages of the province of Garbieh, but has assumed no serious proportions. Great difficulty is experienced, however, in obtaining early and trustworthy information about suspicious cases of illness in the villages in which the sanitary authorities are obliged to rely on the information afforded by the sanitary barbers. These are recognised Government officials, but are unpaid, and it is to their interest to be on good terms with the omdehs, scheiks, and inhabitants of their villages. As they depend for their livelihood on the latter, who are generally more inclined to conceal any cases of infectious disease than to announce them, the barbers' information, as may be imagined, is not of a very trustworthy nature. During the week ending March 9th 12 cases of plague and 4 deaths from the disease have occurred throughout all Egypt. 1 case and 1 death occurred at Tantah, 1 case at Abusir, 2 cases and 1 death at Nahtai, and 8 cases and 2 deaths at Kom-el-Nur. As regards The Mauritius telegrams from the Governor received at the Colonial Office on March 7th and 14th state that for the week ending March 6th there were 19 cases of plague, of which five proved fatal, and for the week ending March 13th there were 10 cases of plague, of which seven were fatal.

ACETYLENE AS AN ILLUMINANT IN WARFARE.

A GOOD and easily managed illuminant, portable and yet capable of maintaining a clear and steady light for lengthened periods in spite of wind and rain, is a desideratum which medical officers have long sought for, though so far without any very conspicuous success. On active service the surgeon's duties are often heaviest during the hours of darkness, and it would indeed be a priceless boon if a lamp could be devised which would in the first place enable him to search rapidly and effectually for the wounded after an engagement, and next would afford the indispensable light without which it is utterly impossible for him to do justice either to his patients or to modern science. The subject of acetylene as an active service illuminator was taken up a year or two since by Dr. Nikolaï who extolled an apparatus consisting of a generator of the size of a haversack which was connected with a burner and reflector by means of a long rubber tube. This apparatus was described at length in the *Deutsche Militärärztliche Zeitschrift* for October, 1899, but in the number of that journal for January last there is an article by Dr. Reh pointing out what he regards as fundamental defects in the highly-praised invention. To begin with it is far too large and too heavy, requiring the exclusive services of a bearer, and next, besides being very fragile it is awkward to manipulate and by no means unlikely to explode. According to Dr. Reh an acetylene campaign lamp ought to be very light and yet strong and be capable of being carried either in the hand or attached to the waist-belt so that the bearer can at the same time fulfil his normal duty. After experimenting for over two years Dr. Reh has succeeded in constructing an acetylene lantern which, in his opinion, has answered all requirements under the most severe tests with regard to rain, wind, storm, and intense cold. Every stretcher-bearer, he considers, should be provided with one of these lamps, which are constructed so simply that any person of average intelligence can learn the management in a few minutes. When extra light is needed for an operation or any other cause three or five of the lamps can be attached to portable stanchions, or if desired, larger lamps can be provided on the same principle, though Dr. Reh does not think that this is necessary.

WHAT IS WATERED BUTTER?

IT seems to us that further legislation in regard to the control of the sale of butter is being attempted upon most unsatisfactory lines. It has been recommended by a Departmental Committee of the Board of Trade that 16 per cent. of water shall be the limit of genuine butter. To this recommendation the obviously weak-kneed rider is added that in the event of a disclosure being clearly made to the purchaser that the butter contains more water than this no offence shall be deemed to have been committed. In that case obviously there would practically be no limit to the extent to which butter may be watered. We do not believe in this principle of "disclosure" at all. At any rate the principle is not calculated to save the pocket of the purchaser. Take the case of the so-called milk-blended butter which contains at least 25 per cent. of water derived, it is said, from the milk worked into it. At first this was sold simply as "butter," but the High Court of Justice decided that it could no longer be sold as "butter" and thereupon the term "milk-blended butter" was ingeniously introduced. The fact, however, that it contains 25 per cent. of water is disclosed on the wrapper and the price is 1*s.* per pound, and the average purchaser thinks that he is getting genuine butter so much cheaper than before. As a matter of fact he is the loser, for out of 16 ounces of the milk blend at least four ounces are water, and he who pays 1*s.* a pound for water is hardly wise in his generation. Of course, the "disclosure" does not help him out of the delusion; the average member of the public is not educated sufficiently to understand it. The Food and Drugs Act was intended to protect the consumer not only against injurious elements in his food but against fraud also, a fact which even the Lord Chief Justice of England seems to have lost sight of, for he ruled on one occasion that glucose might be permitted in marmalade as it was quite a harmless addition. So is water to milk. The only chance of affording the consumer effectual protection seems to us to be by the adoption of standards by the legislature. Genuine butter must be defined in the same way as genuine milk has been defined, but we think that a mistake is made in the case of the former by placing the limit upon the amount of water. Why not, instead, demand a standard amount of butter-fat in genuine butter? In other words, butter containing less than a prescribed amount of butter-fat should be deemed not to be genuine. In the case of milk the standard is not based upon the amount of water permissible in it, but upon the amount of fat and the solids not fat respectively, and in the same way the proportion of fat should determine the genuineness or not of butter. Provided that this standard was reasonably high "milk-blended butter" would obviously come outside the definition of genuine butter. As it is our authorities seem chary to initiate any definite action which shall put a stop to what Sir Edward Strachey has in a vigorous and timely letter to a

contemporary described as "a fraud on the poor as it leads them to believe from its description that the addition of milk enriches it [butter], instead of impoverishing it." And where is this sort of thing, this mixing, to be stopped? For as matters stand at present disclosure would permit the addition of 40 or even more per cent. of water if it could be successfully incorporated. Mr. Justice Wills has given his opinion that this incorporation of milk with butter is done with the object of making "a spurious profit." If that is so, surely the law needs to be amended in order to stop this practice. Average milk contains 88 per cent. of water, so that adding milk to butter is tantamount to adding water to it. The unjust difference is that the man who adds water to his butter cannot get off by declaring that such is the case, while the man who adds milk can, although by so doing he may raise the water to nearly 30 per cent. Anything more anomalous than that we cannot imagine. If something is not done soon the butter trade will be completely demoralised by this regrettable concession.

SMALL-POX AT CHARTERHOUSE SCHOOL.

THE alarming rumours of small-pox at Charterhouse School, Godalming, and the startling statements that have appeared in the press do not appear to have been fully justified by the facts. Upon inquiry into the circumstances we find the following to be the true history of the case. On Dec. 24th one of the boys while at home developed spots which had all the characteristics of variola. An experienced physician pronounced the case to be one of small-pox and it was so treated and registered as such by the medical officer of health. The boy had been vaccinated some three weeks before the appearance of the rash. On Feb. 22nd the boy returned to Godalming and on March 5th on account of some inflammation of the eye he was sent into the school sanatorium, where on March 7th a rash was observed of exactly the same character as that seen in December. In the opinion of three skilled medical men these spots were due to small-pox and, though the case was anomalous, there was nothing else to do but to treat the boy as a patient suffering from variola. As a matter of course the most rigorous precautions have been taken and in all cases revaccination, where required, has been enforced. The occurrence has, naturally enough, excited some criticisms on the medical and nursing conditions at Charterhouse School that may be more or less disregarded, but we think that it would be advisable for the authorities carefully to consider whether the matrons of the different houses are afforded sufficient skilled help in nursing boys under their care.

THE PSYCHOLOGY OF ANARCHISM.

IN the *Scottish Medical and Surgical Journal* for March Dr. George R. Wilson of Perth Asylum has published a brief and interesting paper on "Anarchism, the Insanity of Delusive Expedient," in which, after referring to the medico-psychological aspects of the case of Czolgosz (the assassin of the late President McKinley), the question is raised as to the "psychological significance of this social disease, anarchy, and whether we are quite justified in regarding it as consistent with sanity." The intelligence of the anarchist was, it is argued, probably above the average of those of his class in society, but such intelligence was marred by characteristic defects. Of these, the fundamental defect was a morbid sense of injustice and oppression, a tendency to regard civilised institutions as wrong, unjust, and tyrannical. It was the creed of the weakling mind which found the conditions of life too hard and which lacked courage and perseverance to face the situation and to redeem itself from it. The anarchist regarded existing institutions and the accepted opinion and customs of society as "systematised engines of partiality and cruelty," an attitude of mind which closely bordered on that of the paranoiac and which readily developed delusions of persecution. Another "stigma" was characteristic of the anarchist's mind—viz., an excessive tenacity of belief which was like unto an insane delusion in that the mind was incapable of seeing and examining the grounds for its creed or belief; it found the doctrines of anarchy satisfactory to its own inclinations and accepted them without thinking. The anarchist was a reformer whose ideas ran counter to all the tendencies of social evolution and who, finding his preachings and expedients futile to gain converts, did not hesitate to kill. His criminality was found in his murderous instincts and his insanity was obvious in its irrelevance, in "the ineptitude of the act in relation to the end desired." Moreover, the mind of the anarchist was unduly amenable to "suggestion" and depended for its existence upon intercourse with like minds. When social inequality was great and the ruling powers were corrupt and despotic anarchy might tend to flourish as a social disease; but with the progress of social evolution, which, while it rendered the struggle for life keener, tended also to make it more fair and just to the competitors and helped to shelter and to guard the weak-minded from the special vices and dangers to which they might otherwise succumb, anarchy might be confidently expected to diminish.

THE debate on the Nature and Origin of Cancer which was inaugurated by the Chelsea Clinical Society with great success on March 11th is continued in our columns this week, the debate having been resumed on Tuesday last, March 18th. Owing to the amount of material at the society's disposal it has now been decided to hold a third meeting on Tuesday next, March 25th, at which communications will be received from Professor Adami of McGill University, Montreal, and Mr. W. R. Gaylord of New York, while Professor R. T. Hewlett and Mr. D'Arcy Power will speak. The debate will then be closed by Dr. J. F. Payne. All members of the medical profession will be welcomed at the third meeting as at the others.

MR. HENRY N. CUSTANCE, who has been secretary to the Metropolitan Hospital Sunday Fund since 1873, has resigned that post owing to ill-health. Sir Edmund Hay Currie, who was an originator of the fund and who has been one of its honorary secretaries since its formation, has consented to act as secretary, and Mr. R. A. Owthwaite, who has been associated with Mr. Custance throughout his period of service, will continue his connexion with the fund under Sir Edmund Hay Currie.

THE Second International Congress for Electricity in Medicine and Radiography will be held at Berne from Sept. 1st to the 6th, 1902, and the Second International Congress for the Prophylaxis of Syphilis and of Venereal Diseases will be held at Brussels between the same dates. We shall give further details of both meetings in a future issue.

HIS MAJESTY THE KING has announced that at the Coronation he will entertain at dinner 500,000 of his poorer subjects at an expense of £30,000 from his privy purse.

HIS MAJESTY THE KING has appointed Dr. James Harper to be an Esquire of the Order of the Hospital of St John of Jerusalem in England.

Looking Back.

FROM

THE LANCET, *SUNDAY, MARCH* 21, 1824.

CHEMISTRY.

There is not a more important or valuable branch of Medical education than Chemistry, and the rapid advancement this science has recently made, renders it equally interesting to men of general research. Among the ancient physicians, this science, or rather art, as it then existed, was held in high estimation, because they found considerable benefit to result from an application of its principles in their profession, notwithstanding the imperfect knowledge they possessed respecting its action, and the consequent disadvantages they must have experienced in its employment. In our times, the great value of chemistry to medical practice is every day proved by the success which attends a just application of its principles, whether adopted for the purpose of discovering the cause of disease, or of prescribing remedies for its cure. It is, therefore, now justly regarded as the ground-work of all medical knowledge, and it is also indispensably a most important part of surgical education; for chemistry alone is the only key to physiological investigation; and when the medical philosopher, whether surgeon or physician, enters this wide field of inquiry, he must rely on chemistry as his guide and interpreter, provided he wishes to examine with success the sublime laws of Nature as displayed in organic life; or extort from her a confession of those general regulations by which her empire is governed. The real importance of this science, as it now exists, is not only felt in every branch of the medical profession, but is observed to extend its influence to every class of society, hoisting its banners in every country, and rapidly enlisting active supporters in the common cause of useful knowledge.

Sensibly feeling the importance of chemistry ourselves, and the probable advantage of communicating on this subject with our professional readers, we shall devote a part of our pages every week expressly to the purpose; and, in order to make our papers as beneficial as possible, we shall give them as a regular series, on the elements of the science; detail simple and inexpensive methods of performing the necessary experiments connected with the subject; at the same time, introducing new and original matter, as we proceed, either in the way of theory or practice, as it becomes known in this country or any other.—We have stated that we shall give our papers as a series, on the elements of chemistry, and detail simple methods of performing those experiments which are connected with our immediate subject; our reason for adopting this plan, is because we have observed many intelligent persons, who have attentively studied the best chemical works, and diligently attended chemical lectures, ignorant of some of the first and most simple principles of the science—possessing only a knowledge of terms and phrases which they do not understand, or have not experience to apply; and this we can fairly attribute to the want of that personal experiment which is necessary to fix the subject permanently and usefully on the mind.

We may here remark, that practical operation is as necessary to the study of chemistry, as dissection and personal observation are to the study of Anatomy; for in either case no useful or permanent knowledge can be obtained without actual operation; and as the experiments in chemistry, as generally laid down in chemical works, or shown in public lectures, cannot be made by inexperienced individuals, we shall endeavour to give such as may easily be performed by every reader of our journal, however ignorant he may be of practical chemistry; we thus hope to give to those who wish to study the science with success, an opportunity of doing it in the only way that can lead to advantage, namely, by personal experiment.

In our next number we shall commence an inquiry into the nature and effects of *heat*.

Danger of Smoked Provisions.

M. G. KERNER, a physician at Stutgard, has just discovered a new species of poison proceeding from smoked provisions; it appears, from experiments which he has made, that such provisions become subject to a species of decomposition, which renders them poisonous. Sausages made with liver are most liable to it, and the decomposition generally takes place towards the middle of April. Doctor KERNER has ascertained that of *72* persons in a district of Wurtemburg, who partook of smoked sausages, *37* died in a short time, and the others continued ill for a longer or shorter period.—*Ibid.*[1]

NATIONAL ASSOCIATION FOR THE PREVENTION OF CONSUMPTION.

ON March 18th Lord Derby presided over the third general meeting of the members of the National Association for the Prevention of Consumption and other Forms of Tuberculosis at 20, Hanover-square, London.

Lord DERBY, in moving the adoption of the report of the council of the association, said that they had now reached that stage when they must be contented with progressing quietly on the path of progress. They had reason to congratulate themselves on the success of the British Congress on Tuberculosis held last year and special thanks were due to Mr. Malcolm Morris who had worked so hard in the cause. The records of that congress would mark a very distinct epoch in their knowledge of the science for which that association was formed. In regard to the suppression of the habit of expectoration in streets and in public places he was bound to say from personal observation that those against whom their warnings were directed were making the most of their time while it lasted, and it was not possible to say that there was any diminution in the filthy and disgusting habit. It might be suppressed in time, but at present they could only caution the public. He pointed out that a great deal had been done for the proper ventilation of work-rooms, and he urged upon all interested to make the best use of the means within their reach to advance the objects of the association.

Sir WILLIAM CHURCH seconded the motion and said that notification of tuberculous disease was an important point. He did not mean that it would aid much in the interests of the individual but it would enable them to make out where tuberculous disease was especially prevalent. Whatever the differences amongst medical men might be they were all united in the opinion that it was the environment of people which was of such special importance in regard to the prevention of tuberculosis. The work of the association fell into two classes—prevention and treatment. Treatment appealed more strongly to the public than prevention but prevention was far the more important. That point should not be lost sight of and the public should be instructed in the prevention of the disease.

Dr. ELDON PRATT having addressed the meeting, Colonel the Hon. W. LE POER TRENCH made a personal explanation in regard to his retirement from the council, in the course of which he remarked that Mr. Alabone had been removed from the Medical Register in consequence of the profession considering him to be a visionary in regard to his cure for consumption.

The motion was then put to the meeting and was declared to be carried.

The following were elected members of the council:—Dr. Theodore Dyke Acland, Dr. L. A. Weatherly, Sir Alexander Kinloch, Mr. Edgar Speyer, Dr. G. Vivian Poore, Dr. W. H. Corfield, Dr. Isambard Owen, Dr. F. W. Burton-Fanning, Sir George Brown, and Professor McFadyean.

Sir WILLIAM BROADBENT, in moving the vote of thanks to the chairman, said that Mr. Alabone was removed from the Register for advertising, and not because of any opinion he held in regard to the treatment of tuberculosis.

Mr. MALCOLM MORRIS seconded the vote of thanks, which was suitably acknowledged by the Chairman.

The proceedings then terminated.

[1] Gazette de Santé, Feb. 25th.

BEQUESTS AND DONATIONS.—Mr. T. Heap of Blackpool, who recently gave £100 to the Victoria Hospital, has just forwarded another £50 to the secretary of the hospital.—The treasurers of the Middlesex Hospital have received from Miss Fenton £50 to help to defray the expenses of the cancer ward.

THE METROPOLITAN WATER-SUPPLY.

IV.[1]

THE SOUTHWARK AND VAUXHALL WATERWORKS COMPANY: SOME QUESTIONS FOR THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

EPIDEMIOLOGISTS ought possibly to be grateful to the former directors of the Southwark and Vauxhall Waterworks Company, for it was in consequence of the arrangements which they made that Dr. J. Snow was able to prove beyond the possibility of doubt that cholera was spread by means of water. The customers through whose sufferings this fact was established had no reason to be satisfied with the company, which "was purveying perhaps the filthiest stuff ever drunk by a civilised community." So the water was described by Mr. John Simon (now Sir John Simon, K.C.B.) in his report to the Right Hon. William Cowper, President of the Board of Health.[2] At that time the directors of the company declared the water to be "unexceptionably good" and the chairman contended that the works were capable of distributing from the Thames at Battersea a supply "inferior in no appreciable degree to the stream in any part of its course," and he protested against a change in the intake as "a wholly uncalled-for expenditure of capital." The Battersea station of the company still exists, but the intake has (in consequence of the powers of control exercised under the provisions of the Act of 1852) been long removed (to Hampton) and it was expected that before this time the old station would have been abandoned. It may be fair to state here that the directors of the Southwark and Vauxhall Waterworks Company, who said that the water which they supplied was of "unexceptionably good" quality, found support for their contention that they were not purveying the filthiest stuff possible, or at any rate that it was not unwholesome. "Gentlemen of deserved eminence as chemists (though, perhaps, not entitled to speak with equal authority on the causation of disease) were found willing to express opinions both that this water, nourishing a population of animalcules, would 'not be noxious' to health, and that we cannot in any part of the world connect the ravages of cholera 'with the quality of the water' consumed."[3] The water companies employed experts in those days. A description of the Battersea station of the Southwark and Vauxhall Company has been given in THE LANCET, of March 27th, 1897, p. 901, and it was then stated that the place would not be used after the completion of the alterations which were at the time in progress at Hampton. In these circumstances it was not deemed necessary to enter so fully into a description of all the details, as it might otherwise have been. "The sanitary arrangements," it was said, "are not strictly in accord with modern ideas." At that time a jakes or privy of the kind preferred by the late Colonel Sibthorpe was situated in the grounds.[4] The outlet of the other sanitary appliances discharged into the river Thames.

It happened that the new Hampton works were completed at the time at which repeated water famines in the East End of London had for a moment awakened the inhabitants from the state of good-tempered apathy in which they usually live, and even the President of the Local Government Board was moved to think that something ought to be done. He therefore requested Lord Llandaff's Commission which happened to be sitting at the time to consider a scheme of intercommunication between the companies mains—a scheme which had then recently been propounded by the representatives of the metropolitan water companies. The general principle of the scheme was recommended in Lord Llandaff's First Report, and an Act was passed to enable the work to be carried out under the supervision of the Local Government Board. The nature of the original scheme was explained in THE LANCET of Nov. 12th, 1898, p. 1287, when it was initiated, and a modification of it was afterwards recommended with the distinct proviso that the use of the Battersea station was to be a temporary measure, and it was clearly pointed out that this undesirable course was advocated as the lesser of two evils—the greater evil being the certainty that if it were not adopted the unfortunate customers of the East London Company would again suffer from the discomforts and the dangers of another water famine. The premises of the Southwark and Vauxhall Company ought never to have been allowed to fall so far short of modern requirements, but for years the directorate of the company carried on its business with the least possible outlay. The managers of the company of whom Sir John Simon wrote years ago have had their modern counterparts. A good specimen of the type appeared before the Llandaff Commission in the person of Sir Henry Knight, chairman of the company.[5] The ideas of this gentleman in regard to the necessity for large storage reservoirs were not in accord with the teaching of modern sanitarians. Mr. J. Parry, the engineer to the city of Liverpool, recently insisted on the fact that "there are some years in which the consumption [of water] becomes abnormally high through the influence of severe frosts in the winter and long droughts in the summer. I need scarcely point out," he adds, "that in any comparison between the quantity per day to be provided and the resources available to meet those demands these abnormal rates of consumption must not be overlooked." Sir Henry Knight said in the evidence which he gave before the Landaff Commission that such provision against abnormal demands was inadvisable. We do not profess to attach any value to the scientific opinion of Sir Henry Knight, but as unfortunately the London water companies have in too many cases been managed by men holding his views it may be worth while once for all to show how the matter of water-supply has been looked upon by such people. The following report from the shorthand notes will make this clear.

> THE CHAIRMAN (Lord Llandaff): I should like to hear from you what is within the control of the company. Supposing the company has been wanting in forethought, has not provided reservoirs enough, has not provided pumping power enough, has not provided duplicate mains and pumps when they ought prudently to be provided, is it to go on getting its water-rate although it supplies no water?
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> SIR HENRY KNIGHT: That would all depend as to whether the deficiency in any one of the circumstances which your lordship has mentioned is caused by any ordinary natural causes or came about from extraordinary natural causes. ..... I maintain that it is not in the interests of anybody that it [a company] should put itself in a position to meet causes which may never arise at all; that it would be a useless expenditure of capital and a waste of money.
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> The CHAIRMAN: Then you would have said that any company was acting foolishly which in 1897 provided itself with storage for such a year as 1898?—The WITNESS: 1898 was an exceptional year.
>
> The CHAIRMAN: Exactly; do not repeat it all over again. Is what I have just put to you a fair inference from what you have just said—1898 was an exceptional and extraordinary year not to be foreseen, therefore it would be absurd to require a company to provide itself for such a year as that?—The WITNESS: I do not say it would be absurd. I think it would be inadvisable.
>
> The CHAIRMAN: Very well. I will take the milder word inadvisable if you like.—The WITNESS: Because it would be a great expenditure of capital.

If the interests of the people of London had been as keenly looked after by the Local Government Board as the financial interests of the shareholders of the water companies have been studied by the directors of those undertakings the present state of the water-supply would have been vastly different from that which exists to-day. For many years the Southwark and Vauxhall Company did as little as possible in regard to improvements, but at last a time arrived at which circumstances forced them to give up their state of masterful inactivity. The following tabular statement shows the nature and amount of the chief changes which have taken place between December, 1896, and December, 1901 (Table I.).

From this table it is seen that during the last few years the storage capacity and the filtration area of the Southwark and Vauxhall Company have both been materially increased. A casual glance at the table, however, might probably cause a reader to come to a very erroneous conclusion as to the amount of the improvements which have taken place. The

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[1] Articles I., II., and III. appeared in THE LANCET of March 1st (p. 614), 8th (p. 692), and 15th (p. 767) 1902, respectively.

[2] Report on the Last Two Cholera Epidemics as Affected by the Consumption of Impure Water. Addressed to the Right Hon. the President of the General Board of Health by the Medical Officer of the Board. London, 1856.

[3] See minutes of evidence taken before the Select Committee on the Metropolitan Water Bill, August, 1851; Return to Inquiries of Metropolitan Sanitary Commissioners, 1850; and Remarks on the Water-supply of London by Sir W. Clay, Bart., M.P., chairman of the Grand Junction and Southwark and Vauxhall Companies, 1849. Reference given in report.

[4] Colonel Sibthorpe "disapproved of the new patent water-closets, and much preferred the old system." Speech in the House of Commons, May 5th, 1848.

[5] Feb. 6th, 1899, at the forty-ninth sitting of the Commission.

TABLE I.—*Showing the Nature and Amount of the Chief Changes effected in the Works of the Southwark and Vauxhall Company between December, 1896, and December, 1901.*

—		In December, 1896.	In September, 1898.	In December, 1901.
Supply	Average daily supply in gallons	31,996,886	—	28,819,380
	Percentage delivered for other than domestic purposes, exclusive of waste	15 to 20	—	15 to 20
	Number of houses supplied	119,948	121,991	126,082
	Number of houses on constant supply	112,455	114,177	117,286
	Estimated population supplied	891,213	—	846,010
Reservoirs, subsiding and storage, unfiltered water	Number	4	5	5
	Area in acres	26	49	70
	Available capacity in gallons	136,000,000	276,000,000	436,000,000
Storage filtered water reservoirs	Number	4	5	5
	Capacity in gallons	18,000,000	19,000,000	19,000,000
Filters	Number of beds	18	18	31
	Area in acres	20½	20½	31¼

first part of the present article has indicated wherein the fallacy may lie.

The East London Waterworks Company has by an arrangement made for that purpose with the Southwark and Vauxhall Company of late derived water from the Battersea station of the latter company. It does not appear that the water so supplied is accounted for as distributed by the Southwark Company. If water filtered at the Battersea station is used in the East London district and not for the supply of the Southwark Company's customers, and if still the Southwark Company is credited with the use of the Battersea filter-beds, it is evident that statistics founded on erroneous data are worse than valueless—they are misleading. This point should be made quite clear. Under the column giving the figures representing details of supply, reservoir capacity, and filtration area for the month of December, 1901, it is seen that the daily average supply in gallons was 28,819,380, the storage reservoir capacity is given as 436,000,000 gallons and the acreage of filter-beds as 31¼. Was the whole of that storage reservoir capacity used for the customers of the Southwark Company, and were all the filter-beds used for the purification of the water supplied to them? Or were some of the filter-beds used for the purification of water distributed by the East London Company? The monthly report of the Water Examiner does not give the information necessary to solve these problems. We must therefore leave these questions unanswered for the time and pass on to note the quality of the water supplied during the year 1901 by the Southwark Company. In order to present this information in the most convenient way a table has been drawn up (Table II.) which makes it easy to compare the amount of organic carbon and the amount of organic nitrogen found by Dr. T. E. Thorpe to be present in water supplied by the Southwark, the New River, and the Kent companies respectively. During the whole of the year it appears that only 12 complete analyses were made of the water supplied by the two last-named companies and 13 of the water supplied by the Southwark Company.

The table shows clearly enough that throughout the whole of the year the water supplied by the Southwark and Vauxhall Company whenever it was examined contained more organic carbon and more organic nitrogen than the specimens of water taken from the mains of the New River Company and of the Kent Company. It shows also that the water supplied by the Southwark Company contained more organic carbon and more organic nitrogen on Dec. 30th than on Dec. 9th. The water was worse at the later date as a result of the increased impurity of the Thames during a time at which the river was in flood. The marked superiority of the Kent deep well water is apparent. It may seem curious that at the Llandaff Commission one of the experts employed by the water companies gave evidence to the effect that well water was dangerous, but on being pressed on the matter by the Chairman he referred to the case of the Caterham well which a workman, who was suffering from typhoid fever, had defiled

TABLE II.—*Showing the Results of Analysis Expressed in Parts per 100,000 of Organic Carbon and of Organic Nitrogen in the Water supplied by the Southwark and Vauxhall Waterworks Company, the New River Company, and the Kent Company in each Month of the Year 1901. (Compiled from the Reports of the Results of Analysis made by Dr. T. E. Thorpe, F.R.S., on behalf of the Local Government Board.)*

Month.	Organic carbon, expressed in parts per 100,000.			Organic nitrogen, expressed in parts per 100,000.		
	Southwark and Vauxhall Company.	New River Company.	Kent Company.	Southwark and Vauxhall Company.	New River Company.	Kent Company.
January	0·212	0·070	0·039	0·031	0·010	0·008
February	0·260	0·073	0·044	0·032	0·012	0·010
March	0·290	0·141	0·043	0·029	0·013	0·010
April	0·214	0·124	0·043	0·021	0·012	0·008
May	0·098	0·081	0·042	0·017	0·013	0·006
June	0·138	0·068	0·036	0·021	0·009	0·007
July	0·135	0·062	0·058	0·014	0·010	0·012
August	0·147	0·049	0·038	0·020	0·007	0·005
September	0·131	0·115*	0·037	0·020	0·013*	0·009
October	0·115	0·046	0·058	0·013	0·010	0·007
November	0·128	0·070	0·055	0·020	0·009	0·009
December (9th)	0·111	0·093	0·048	0·016	0·009	0·006
December (30th)	0·194	—	—	0·019	—	—

* The increase in the organic matter is said to have been due to the admixture of the water of another company.

by his alvine evacuations—a case which apparently did not convince Lord Llandaff that well water was necessarily dangerous.

The Report of the Water Examiner contains month after month a general statement to the effect that the Southwark and Vauxhall Company has the means during floods of pumping from the gravel beds adjoining the Thames, "and this is practically equivalent to an addition to their storage resources." More complete information on this subject would be of interest.

Is the President of the Local Government Board acquainted with the present sanitary condition of the Battersea station of the Southwark and Vauxhall Waterworks Company?

Does the President of the Local Government Board consider that the Battersea station of the Southwark and Vauxhall Company is suitable for the purpose for which it is used? If not, has any representation to that effect been made to the Southwark and Vauxhall Company or to the East London Waterworks Company?

Does the President of the Local Government Board know if any, and if so how much, water from Battersea was distributed by the East London Company during each month of the year 1901 and during the months of January and February of the present year? In the case of water distributed by any company is that company responsible for the quality of the water distributed?

Has the attention of the President of the Local Government Board been called to a statement which is frequently made in the reports of the Water Examiner that "all the samples of water collected at the works of the companies were efficiently filtered"? Does the analyst appointed by the Local Government Board examine samples of water taken at the works of the companies? Has he ever examined one specimen taken at the works of any company? If so, when did he do so? And were the results of the analysis published in the report of the Water Examiner? If the analyst appointed by the Local Government Board does not take samples of water at the works of the companies is he responsible for the statement that "all the samples collected at the works of the companies were efficiently filtered"? If

the analyst to the Local Government Board is not responsible for the statement on whose evidence is it made?

ASYLUM REPORTS.

London County Asylum, Claybury (Report for the year ending March 31st, 1901).—The average number of patients resident during the year was 2496, comprising 1048 males and 1448 females. The admissions during the year amounted to 591—viz., 247 males and 344 females. Of these, 499 were first admissions. Dr. Robert Jones, the medical superintendent, states in his report that "a considerable rise has taken place in the reception of senile cases. Of all the admissions 18 per cent. were over 60 years of age," whereas in the previous year they were 10 per cent. "Many of these patients," adds Dr. Jones, "die from pure senile decay." There are many conditions, argues Dr. Jones, against the sending of such patients to the asylum; and yet they are difficult to treat at home or in an infirmary owing to habits of restlessness and wandering, especially at night, when supervision is not easy. "Their habits are defective and they are neither amenable to persuasion nor argument." Alcohol was determined to be the causal factor in 15 per cent. of the male and 11 per cent. of the female admissions, but the true proportion is regarded as higher. About one-third of the cases were attributed to heredity and previous attacks, and 10 per cent. to worry, anxiety, or adversity. "It is a grave feature that the insanity of nearly 10 per cent. of all the females who were admitted up to the age of 45 years was referable either to pregnancy, delivery, or lactation. This proportion gives 7 per cent. of all females admitted at all ages, and corresponds closely with that of the Lunacy Commissioners' Report of 1900." The number of patients discharged as recovered during the year amounted to 213—viz., 92 males and 121 females, or 8·5 per cent. of the average number resident. The deaths during the year amounted to 233—viz., 100 males and 133 females, or 9·3 per cent. as calculated on the same basis. Of the deaths five each were due to cancer and epilepsy, six to senile decay, 11 to influenza, 12 to bronchitis, 18 to cardiac disease, 22 to phthisis, 34 to pneumonia, 34 to colitis, 58 to general paralysis of the insane, and the rest to other causes. An outbreak of colitis during the year attacked 194 patients—viz., 69 males and 125 females—and resulted in 34 deaths, as above mentioned. "Special written instructions have been issued to all the attendants and nurses" having care of these cases of colitis. Suicide occurred in the case of one patient who was out with friends on trial, and this was the only instance among a considerable number of patients (nearly 30 per cent. of the admissions) with marked suicidal tendencies. The sub-committee of the asylum states in its report that the sewer drains of the whole asylum are being inlaid in concrete. The sum of £6980 has been expended during the year on repairs, and a further sum of £361 on additions and improvements. The Commissioners in Lunacy state in their report that the wards were in excellent order during their visit, the rooms bright and comfortable, the beds and dormitories clean and neat, and the personal appearance of the patients quite satisfactory. Regarding a special therapeutic measure—viz., the electric bath—Dr. Jones writes: "I have used the electric bath at Claybury for the past seven years and consider it a valuable remedy for adolescent melancholia and certain cases of stupor, alcoholic neuritis and lead neuritis."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8615 births and 5573 deaths were registered during the week ending March 15th. The annual rate of mortality in these towns, which had been 24·4, 23·3, and 20·5 per 1000 in the three preceding weeks, further declined last week to 19·6 per 1000. In London the death-rate was 22·0 per 1000, while it averaged 18·4 in the 75 other large towns. The lowest death-rates in these towns were 6·6 in Handsworth, 9·7 in Hornsey, 10·2 in Wigan, 11·5 in Ipswich, 11·8 in Walthamstow, and 12·0 in King's Norton; the highest rates were 23·7 in Hastings, 23·9 in Burnley, 25·0 in Hanley, 25·2 in Huddersfield, 28·4 in Plymouth, and 29·6 in Merthyr Tydfil. The 5573 deaths in these towns last week included 617 which were referred to the principal zymotic diseases, against 582, 570, and 600 in the three preceding weeks; of these 617 deaths 187 were referred to measles, 136 to whooping-cough, 100 to small-pox, 71 to diphtheria, 50 to scarlet fever, 46 to diarrhœa, and 27 to "fever" (principally enteric). No death from any of these diseases was registered last week in Ipswich, Devonport, Burton-upon-Trent, Handsworth, West Bromwich, or Stockton-on-Tees; while they caused the highest death-rates in Willesden, Northampton, Hanley, Coventry, Leicester, Grimsby, Burnley, and Huddersfield. The greatest mortality from measles occurred in Reading, Northampton, Grimsby, Warrington, Burnley, Barrow-in-Furness, and Huddersfield; from scarlet fever in South Shields; from diphtheria in Great Yarmouth, Hanley, Coventry, and Middlesbrough; from whooping-cough in East Ham, Northampton, Aston Manor, Leicester, and Birkenhead; and from diarrhœa in Merthyr Tydfil. The mortality from "fever" showed no marked excess in any of the large towns. Of the 100 fatal cases of small-pox registered last week, 81 belonged to London, four to West Ham, three to East Ham, two to Croydon, two to Willesden, two to Tottenham, and one each to Hornsey, Leyton, Hastings, Leicester, Liverpool, and Tynemouth. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 1321, 1309, and 1512 at the end of the three preceding weeks, had further risen to 1542 on Saturday, March 15th; 450 new cases were admitted during the week, against 502, 369, and 555 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of the week was 2206, against numbers decreasing from 3137 to 2283 on the 11 preceding Saturdays; 266 new cases were admitted during the week, against 219, 215, and 277 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 885, 733, and 589 in the three preceding weeks, further declined last week to 498, but were slightly above the corrected average number. Influenza was stated to be the primary cause of 67 deaths in London last week, against 107, 103, and 89 in the three preceding weeks. The causes of 57, or 1·2 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Nottingham, Salford, Leeds, Newcastle, and in 46 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Blackburn, Bradford, Sheffield, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 22·6 and 25·4 per 1000 in the two preceding weeks, declined again to 23·6 during the week ending March 15th, but exceeded by 4·0 per 1000 the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 17·3 in Paisley and 19·8 in Leith to 30·2 in Dundee and 34·0 in Greenock. The 763 deaths in these towns included 23 which were referred to whooping-cough, 23 to diarrhœa, 14 to measles, eight to scarlet fever, seven to small-pox, six to diphtheria, and four to "fever." In all 85 deaths resulted from these principal zymotic diseases last week, against 75 and 69 in the two preceding weeks. These 85 deaths were equal to an annual rate of 2·6 per 1000, which was 0·4 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 23 and 20 in the two preceding weeks, rose again last week to 23, of which 12 occurred in Glasgow, seven in Aberdeen, and two in Leith. The deaths from diarrhœa, which had been 13 and 17 in the two preceding weeks, further rose to 23 last week, and included 11 in Glasgow, four in Dundee, three in Edinburgh, and three in Leith. The fatal cases of measles, which had been 19 and 14 in the two preceding weeks, were again 14 last week, five being registered in Dundee, four in Glasgow, and four in Greenock. The deaths from scarlet fever, which had been three, four, and seven in the three preceding weeks, further increased to eight last week, and included four in Glasgow, two in Edinburgh, and two in Greenock. The fatal cases of small-pox, which had been seven, 10, and two in the three preceding weeks, rose again last week to seven, and were all

recorded in Glasgow. The deaths from diphtheria, which had been six, one, and seven in the three preceding weeks, declined again last week to six, and included three in Glasgow, where two of the four fatal cases of "fever" were also registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 214 and 230 in the two preceding weeks, declined again last week to 189, but were 18 above the number in the corresponding period of last year. The causes of 13, or nearly 2 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 28·6 and 29·7 per 1000 in the two preceding weeks, declined again to 20·6 per 1000 during the week ending March 15th. During the past four weeks the death-rate has averaged 28·1 per 1000, the rates during the same period being 26·0 in London and 22·3 in Edinburgh. The 150 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 66 from the number in the preceding week, and included eight which were referred to the principal zymotic diseases, against 13 in each of the two preceding weeks; of these, four resulted from measles, two from scarlet fever, one from "fever," and one from diarrhœa. These eight deaths were equal to an annual rate of 1·1 per 1000, the zymotic death-rates during the same period being 3·1 in London and 1·3 in Edinburgh. The fatal cases of measles, which had been three, one, and six in the three preceding weeks, declined again last week to four. The 150 deaths in Dublin last week included 21 of children under one year of age and 37 of persons aged upwards of 60 years; the deaths of infants and of elderly persons were respectively 11 and 38 less than the numbers in the preceding week. No death from violence was registered during the week; two inquests were recorded; and 54, or more than one-third, of the deaths occurred in public institutions. The causes of eight, or more than 5 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff Surgeons: G. T. Collingwood to the *President*, additional for service at Deptford Victualling-yard; Charles Strickland to the *Aboukir*; and Hamilton Meikle to the *Vengeance*. Surgeons: Walter P. Dyer to the *Aboukir*; George Gibson to the *Nile*; Harold E. Fryer, Algernon C. Bean, and Warren G. Westcott to the *Hawke*, for duty on the voyage home; and A. J. Wernet to the *Pembroke*, additional, to be lent for service at Deptford Victualling-yard.

ROYAL ARMY MEDICAL CORPS.

Major T. McCulloch has been appointed Deputy Assistant Director, Army Medical Department, at Headquarters, vice Major W. G. Macpherson.

Colonel J. F. Supple, C.B., has been appointed Principal Medical Officer, Meerut District

Major D. R. Hamilton has arrived at Colchester. Captain R. S. H. Fuhr is appointed for duty in the Home District. Captain A. R. O'Flaherty is appointed for duty with the 4th Battalion the East Surrey Regiment, ordered to South Africa. Lieutenant H. E. M. Douglas, V.C., D.S.O., is appointed for duty in the Home District.

INDIA AND THE INDIAN MEDICAL SERVICES.

Colonel A. Scott Reid has been appointed to succeed Surgeon-General Franklin as Inspector-General of Civil Hospitals in the Punjab, Colonel Joubert succeeds Colonel Hutcheson in a similar capacity in the North-West Provinces and Oudh. Colonel Geoffrey Hall succeeds Colonel Scott Reid as Administrative Medical Officer and Sanitary Commissioner in the Central Provinces.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant-Colonel E. Shedd having resigned his Volunteer appointment, ceases to belong to the Army Medical Reserve of Officers.

IMPERIAL YEOMANRY.

Surgeon-Captain G. H. S. Daniell, of the Dorset (Queen's Own), and Surgeon-Captain P. B. Mackay, of the Yorkshire Dragoons (Queen's Own), resign their commissions and receive new commissions subject to the provisions of the Militia and Yeomanry Act, 1901, each retaining his present rank and seniority.

VOLUNTEER CORPS.

Royal Engineers: 1st London: Edward Coldridge Roberts to be Surgeon-Lieutenant. *Rifle*: 5th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon-Captain J. Mill to be Surgeon-Major. 1st Volunteer Battalion the Norfolk Regiment: James Morrison Gardiner Bremner to be Surgeon-Lieutenant. 2nd Volunteer Battalion the Durham Light Infantry: Surgeon-Lieutenant R. E. Brown resigns his commission. 5th Volunteer Battalion the Durham Light Infantry: Surgeon-Captain A. A. Abraham to be Surgeon-Major.

SOUTH AFRICAN WAR NOTES.

Civil Surgeon Newton is reported to be improving.

The following officers have been discharged from hospital to duty:—Captain J. D. Alexander, R.A.M.C.; Lieutenant P. S. O'Reilly, R.A.M.C.; Lieutenant R. H. Lloyd, R.A.M.C., Lieutenant J. W. West, R.A.M.C., and Lieutenant C. D. Myles. Civil Surgeons Williams, Dee, Vaux, Jordan, Scott, and Lynch.

SOUTH AFRICAN AFFAIRS AND THE WAR.

A great deal has taken place, although but little of it has much medical interest or significance, during the brief interval that has elapsed since we last referred to the events of the war. We may shortly enumerate what has occurred. The defeat of the force under General Lord Methuen at Tweebosch with the capture and subsequent release of his lordship who was seriously wounded; the grave and critical condition of Mr. Cecil Rhodes; the increased, if fitful, activity of the Boer forces in the field; the widespread prevalence of enteric fever in South Africa; the improved sanitary state of the refugee camps; the arrival in this country of large batches of sick and wounded officers and men from South Africa; and the embarkation of reinforcements for the seat of war. In addition to the foregoing there has been a debate in Parliament on war contracts involving what would have been a vote of censure on the Government on its conduct of the war had the Opposition succeeded in carrying its resolution. This succinctly summarises the history of recent events which, taken as a whole, have made up a somewhat exciting time. In the course of the late debate in the House of Commons it may be remarked that allusions were occasionally made to the army hospital question in South Africa. But to refer to matters of more or less medical interest we have with regret to record that in the reverse at Tweebosch not only did Lord Methuen sustain a gunshot wound of the right thigh attended with compound fracture of the femur, but that Colonel Townsend, R.A.M.C., who was principal medical officer of the force, was wounded in three places after having, it is stated, greatly distinguished himself. As it proved he was able to render some effective aid to Lord Methuen subsequently to their capture. Both are reported as doing well. In the affair at Tweebosch the Boers attacked the British troops with remarkable gallantry and courage. Delarey's subsequent conduct to his captives seems to have been most humane and considerate—indeed, it may be characterised as magnanimous under the circumstances. The account of the engagement furnished by the special correspondent of the *Standard*, and published in that journal of March 18th and 19th, is a very clear and graphic description, and it shows that the affair was one of the severest struggles of the war, in which the efforts of the regular troops might possibly have saved the situation but for the defection and stampeding of the auxiliaries. Be this as it may, we have only to remark that regrettable as such a reverse undoubtedly is at this stage of the war, the force engaged was in reality too small to have any material or lasting effect. It is because it may tend in some degree to protract the operations in the field, and consequently to lead to further and needless loss of life on both sides, that it is mainly to be lamented. As regards the prevalence of enteric fever in armies on field service we have so repeatedly called attention to the subject that little or nothing remains to be said. A weak part in Mr. Brodrick's scheme of army medical reform and reorganisation is in regard to army sanitation. It is a matter which requires to be thoroughly gone into from a

practical point of view, in order to see if anything can be done to prevent the occurrence of diseases of this class.

DEATHS IN THE SERVICES.

Surgeon-General Sir William Guyer Hunter, M.D., K.C.M.G., late I.M.S., suddenly on March 15th at his residence at Norwood in his seventy-fourth year. He was educated at King's College, London, and Aberdeen University, and entered the Indian Medical Service in 1850. He served in the second Burmese war and the Indian Mutiny. Among the various offices which he held in India were those of Professor of Medicine in the Grant Medical College, Bombay, and Vice Chancellor of Bombay University. Sir W. Guyer Hunter represented for seven years the borough of Central Hackney in the House of Commons.

Colonel Robert Coleman Eaton, R.A.M.C., at St. Bartholomew's, Spezia, Italy, in his sixty-first year. He entered the service in 1866, and attained the rank of Colonel in 1896. He served in the Afghan war of 1878 and 1880 (medal).

Surgeon-General John Robert Theobalds, I.M.S., Madras, aged 79 years. He retired from the service in 1880.

PROPOSED FRENCH AMBULANCE.

The Paris correspondent of the *Times* states that Vicomte Christian de Villebois-Mareuil has just despatched an official request to the British War Office for authorisation to organise a French ambulance for the Boers and to be allowed to take charge of the ambulance himself.

Correspondence.

"Audi alteram partem."

THE MIDWIVES BILL.

To the Editors of THE LANCET.

SIRS,—Whatever our views on the subject of legislation to regulate the practice of midwives it is of prime importance that we do not misrepresent the action and the motives of those who differ from us. As one concerned in this controversy and anxious for the real—not spurious—protection of poor lying-in women I shall thank you to insert in THE LANCET the inclosed correspondence which deals with a grave error in Mr. Johnstone's presentation of the subject to Parliament. The responsibility of ignoring conditions insisted on by the General Medical Council is great and not to be minimised by positively erroneous statements. If the tragedies connected with the practice of midwifery by untrained women continue it will not be the General Medical Council that will be to blame.

I am, Sirs, yours faithfully,

Highbury-place, N., March 17th, 1902. JAMES GREY GLOVER.

[INCLOSURE.]

25, Highbury-place, N., March 10th, 1902.

DEAR MR. JOHNSTONE.—In your speech on the Midwives Bill you say that in asking for a penal clause against uncertified women practising for gain the Medical Council was contending for a stepping-stone towards rendering the practice of unqualified medical men absolutely penal (THE LANCET report). Will you allow me with much earnestness and all respect to protest against this statement. I am in a position, though not now in the Council, to say that this statement is absolutely incorrect, and that the clause asking for the penalising of practice by uncertified midwives was urged solely in the interest of lying-in women whose lives are endangered in quite a special way by the practice which it is the object of this legislation to stop.

Of course, all medical men disapprove of irregular and unqualified medical practice, but I think I may challenge you to find in all the records of the General Medical Council a resolution carried by—or even proposed in—that body, asking Parliament to stop unqualified medical practice by penalising it. I need not say that I am no enemy to proper legislation on the subject of midwives. But a measure which omits the principal protection of the poor lying-in women is not legislation but the evasion of it, and is without excuse. At any rate this is the view of the Medical Council in insisting on the clause penalising practice for gain of uncertified midwives, and nothing I am sure is further from your intention than to misrepresent the motives and views of the Medical Council. Poor women do not look at registers and are not guided by titles. So that they will not be protected by merely penalising the use of titles.

Believe me, dear Mr. Johnstone,

Yours very truly,

J. H. Johnstone, Esq., M.P. J. G. GLOVER.

House of Commons, March 12th, 1902.

DEAR DR. GLOVER.—I am very glad to hear from you, on authority, that the General Medical Council do not seek to penalise the unqualified practice of medicine, and I hope that by the publication of this correspondence their attitude in this matter may be made clear to the public and to the profession for all time. I owe them an apology if I have, in good faith, misrepresented their aims, but in explanation I may call your attention to the *British Medical Journal* of Feb. 22nd, which in an article dealing with the present Bill states: "It has long been admitted that this omission" (a penal clause) "is a great defect in the Medical Acts, and *to obtain their amendment in this direction every effort should be made.*" However, your letter now makes it clear that the General Medical Council do not wish to penalise the practice of unqualified medical men, while they do wish to penalise the practice of women, of which Sir William Priestley said, and said truly, "it is quite certain that the House of Commons would listen to no such proposal." We have advisedly based our Bill on the principles embodied in the Medical Acts concerning medical practitioners, and beyond that we cannot hope to go at the present time.

Believe me, very truly yours,

J. G. Glover, Esq., M.D. J. H. JOHNSTONE.

To the Editors of THE LANCET.

SIRS,—As one of the candidates referred to by Dr. A. McCook Weir in THE LANCET of March 8th, p. 697, as having failed to see that a Nursing Bill was introduced into Parliament at the commencement of the present session I can only plead with regret that during December and January last my state of health was such that I was quite unable to undertake the task of preparing a Bill and getting it introduced into Parliament; indeed, it was only with great difficulty that I could attend to the more pressing of my professional engagements. At my suggestion the council of the Incorporated Medical Practitioners' Association appointed a committee in December to consider the Nursing Bill drafted by Dr. McCook Weir, the suggestions of the Manchester Medical Guild, and the Bill drafted by the Parliamentary Bills Committee of the British Medical Association, but that committee failed to report in time for any action to be taken before Parliament met.

I am, Sirs, yours faithfully,

Gibson-square, N., March 12th, 1902. GEORGE BROWN.

HIGH FREQUENCY CURRENTS IN THE TREATMENT OF CANCER.

To the Editors of THE LANCET.

SIRS,—As an announcement has been recently made that currents of high frequency were about to be tried in the treatment of cancer at one of our London hospitals it is exceedingly probable that medical men who are now in possession of the apparatus necessary to their production will be inclined to do likewise, either in their hospital or private practice. Since I first pointed out this "prospect of cure"[1] at least one other has adopted this treatment, and I am glad to have had a favourable report from him upon its effects in malignant disease. Hence the following remarks, the outcome of six months' experience in this method, may not be amiss. Amongst other preliminary measures the estimation of the percentage of urea should never be neglected. This in cases of cancer is always extraordinarily low (in the last case that has come under my care only 0·46 per cent.), but this improves as treatment continues and gives us useful guidance in the progress of the case.

The treatment is both general and local, and it will be found advantageous to commence with the former by placing the patient within the large solenoid for half an hour daily for the first three days. This is generally called "auto-conduction," but as the currents thus set up within the body are entirely induced, it seems to me that "auto-induction" is the better term. Recourse to this will be had from time to time whenever it is necessary to suspend the local treatment. General treatment can also be applied by auto-condensation, but this method is best used in conjunction with local treatment, which may be either uni-polar or bi-polar. It will be convenient to call that electrode which is on the end of the solenoid which is connected to earth "the kathode," and that which is fixed to the distal end of the solenoid, or resonator (if that is used), "the anode." For auto-condensation the kathode may be a sheet of metal beneath the mattress on the couch; for bi-polar treatment it may be of nickel of a convenient shape for the hand or ending in a plaque either of metal or wet clay when applied to the abdomen at such times as the anode is inserted into the vagina or rectum. The best and most manageable plaque can be improvised from thick lead foil. A similar plaque is a very useful means of applying the anode over any considerable surface; the great point

[1] THE LANCET, Sept. 28th, 1901, p. 845.

is to make it fit so closely that no sparking takes place on to the patient. In other cases the anode may be of the ordinary cylindrical shape. For cavities—vagina, rectum, &c.—the most efficacious form of anode is that of a highly-exhausted glass cylinder, of a size suited to the locality, provided with a single pole; this gives good efflorescence and is quite harmless when used with d'Arsonval's apparatus or Oudin's resonator. It is of importance that the skin around the orifices should be well dried and even powdered with starch before inserting the electrode, as a precaution against the spark jumping from the electrode on to the moist skin; also, the electrode should be in position before the current is turned on. The local application will be needed for from 10 to 20 minutes. For broken surfaces the best results are first obtained by the anodic spray.

Any improvement must necessarily be slow and too much must not be expected at first. The earliest signs will be shown in the general condition, in the cessation of pain, the lessening of the cachectic appearance, the increase of urea, the renewed vigour, and interest in life. How far these results will be permanent is as yet too early to decide, and I think that it would be wise not to estimate a case as cured until some considerable time has elapsed. We must not be disappointed if very little change is found in the size of the cancerous masses. They appear to shrink somewhat and this I take to be due to the cessation of action in the growing edge. Apostoli has remarked that in the electric treatment of uterine fibroids, devised by him, the tumours do not disappear although they cease to grow and give no further trouble to the patient. Quite recently it has been shown that several tumours which have been treated in this manner have become polypoid and have come within the reach of easy removal. The treatment by high frequency currents has the advantage of being painless and easy of application.

I am, Sirs, yours faithfully,

Bentinck-street, March 15th, 1902. HORACE MANDERS.

THE DISSEMINATION OF KNOWLEDGE CONCERNING VACCINATION.

To the Editors of THE LANCET.

SIRS,—I was unaware that the Jenner Society is taking steps for giving popular lectures on vaccination. I feel sure that they will be useful. It is possible that anti-vaccinationists will attend to challenge the facts, and for such contingencies the lecturer ought to be prepared. Lectures, illustrated by lantern-slides, on "The Germs of Disease" would probably be well received. The bacillus tuberculosus, bacillus diphtheriæ, and bacillus typhosus could be shown, and interesting facts mentioned as to their mode of growth, manner of infection, and the proper steps to be taken for their destruction. Small-pox and vaccinia can be illustrated by slides exhibiting the germs identified by Klein and other observers as peculiar to these affections; and, as already suggested by me, coloured slides could also be used to prove what a case of genuine small-pox really is.

I hope that by such methods those that "came to scoff" might be induced to be vaccinated; and the society of which Dr. F. T. Bond is the honorary secretary will no doubt do most valuable work in furthering this good cause.

I am, Sirs, yours faithfully,

HERBERT W. G. MACLEOD, M.D. Edin., D.P.H. Cantab.

Streatham, S.W., March 11th, 1902.

CANCER IN INDIA AND IN CHINA.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Jan. 18th, p. 192, Mr. C. B. Keetley inquires in the course of his letter on the subject of cancer whether Mahomedans practise circumcision or not. Possibly long before this letter can reach you some one else will have given Mr. Keetley the information which he seeks, but in case no other person has supplied the want I beg to bring forward the following note on the subject. The subject is an interesting one, and the facts regarding it cannot very well be condensed without obscurity, so that I must apologise if my communication is rather lengthy.

All Mahomedans practise circumcision, though there is absolutely no reference to the rite in the Koran. There is also no authentic account of the circumcision of the Prophet Mahomed himself, but certain authors assert that he was born circumcised. This allegation is, however, denied by the most eminent scholars. The rite is held to be *Sunnah*—that is to say, founded upon the practice of the Prophet. It is directed to be performed between the ages of seven and 14 years, though it is stated in the Sahîh ul Bukhâri that Abraham was circumcised at the age of 80 years with an axe. He is further said to have been the first to have received the injunction to submit himself to the rite, which is there stated to be one of the five duties appertaining to *Fitrah* or observance of the acts of the Prophet, the others being shaving of the pubes, plucking the hair from the armpits, clipping the beard and whiskers, and paring the nails. It is clear from this association that circumcision (*Khitân*) was regarded as purificatory rather than ceremonial. An account of the ceremonies attending the rite of circumcision among Moslems will be found at page 30 of Herklots, "On the Manners and Customs of Muhammadans of India." Consult also Hughes, "Dictionary of Islâm," article "Circumcision." I hope that this note may be of some service to Mr. Keetley.

I am, Sirs, yours faithfully,

GEORGE S. A. RANKING, M.D. Cantab.,

Calcutta, Feb 26th, 1902. Lieutenant-Colonel, I.M.S.

To the Editors of THE LANCET.

SIRS,—I regret to see from Mr. C. B. Keetley's letter in THE LANCET of Jan. 18th, p. 192, that he has taken umbrage at my attempt to assist him in his inquiries regarding cancer. My desire was to point out what I believe to be a misapprehension regarding the comparative immunity of Hindoos to cancer. To say, as Mr. Keetley does, that I alone am responsible for all the medical and surgical wants of 30,000,000 Hindoos in Southern India is as absurd as it would be to say that Mr. Keetley was responsible for the whole population of London. I have only 90 beds under my charge, the average daily sick occupying those beds being something under that number. These are all males and all surgical cases. Amongst this small number of cases I almost always have one or two Hindoos suffering from cancer, and this fact is, as I stated in my former letter, strong evidence to the effect that cancer is common amongst these people. My belief is shared by every medical man, both native and European, with whom I have conversed upon the subject. I regret for Mr. Keetley's sake that I am unable to give any statistics regarding the question, but my colleague, Captain W. J. Niblock, is at present engaged in collecting information of this nature and no doubt will publish the results of his investigation. The answer to Mr. Keetley's query regarding circumcision is that all Mahomedans undergo this rite. It is as obligatory upon the Mahomedan as baptism is upon the orthodox Christian.

I am, Sirs, yours faithfully,

J. MAITLAND, M.D. Edin.,

Lieutenant-Colonel, I.M.S.

General Hospital, Madras, Feb. 22th, 1902.

THE NOVEMBER PRIMARY F.R.C.S. ENG., EXAMINATION.

To the Editors of THE LANCET.

SIRS,—Shortly after the primary Fellowship examination last November I was informed that a slanderous rumour was being actively propagated to the effect that I had prematurely divulged to the members of my class the nature of the questions which had been set for the written part of that examination. This slander was set in motion by a letter written by a medical practitioner to a demonstrator of physiology in one of the London medical schools. The writer was an entire stranger to me. The letter was, without my knowledge, passed on to the President of the Royal College of Surgeons of England who summoned a meeting to consider the matter. I was invited to be present at this meeting. The result of the inquiry will be gathered from the following letter which I subsequently received from the Secretary of the College:—

DEAR SIR,—I am directed to inform you that at a meeting of the Nomination Committee on Dec. 19th, 1901, the following resolution was adopted—viz.: "That the evidence taken by the President and Vice-President be submitted to the Council, and that the Council be informed that after careful consideration of it the Nomination Committee conclude that there is no evidence that Dr. Halliburton either intentionally or unintentionally supplied information on the subject of the questions at the last Primary Fellowship examination."

I am to add that a report of the evidence given before the President

and Vice-Presidents was read to the Council at their meeting held this day, and that the Council having heard the same expressed their concurrence in the conclusion arrived at by the Nomination Committee.

I am, dear Sir, yours faithfully,

Jan. 16th, 1902. S. FORREST COWELL, Secretary R.C.S.

Having received this official decision I called upon the author of the letter to withdraw his statement, and under the pressure of an action at law he has now done so and given me an ample apology in writing. I should not trouble you, but that the slander having been widely spread I shall be obliged by your assistance in spreading equally widely the refutation of it. I have placed the apology in the hands of the President of the Royal College of Surgeons of England. I am, Sirs, yours faithfully,

W. D. HALLIBURTON.

King's College, London, March 15th, 1902.

GREY HAIR AND EMOTIONAL STATES.

To the Editors of THE LANCET.

SIRS,—I trust that you will allow me to add a supplementary note to my letter on the above subject (published in THE LANCET of March 8th, p. 696) for the purpose of drawing attention to a remarkable case of hair-blanching which is in danger of being overlooked. The case is one incidentally referred to by Sir W. R. Gowers in his lecture on Metallic Poisoning (published in THE LANCET of Nov. 2nd, 1901, p. 1173). A man received a blow on the head which resulted in an effusion of blood over the left hemisphere, death occurring after three days. This injury so disturbed the innervation of the hair follicles of the right side of the moustache and beard that the hair in this region, which was brown, gradually became blanched and at the time of death was almost white. This was sufficiently remarkable, but what made the case more remarkable still was the fact that the blanched hair of the right side was separated from the normal brown hair on the left side by a narrow median zone of almost black hair, as though the pigment abstracted from the blanched area had become deposited in this darkened zone. Sir W. R. Gowers would, I presume, infer from this case that the nutrition of the hair follicles on one side of the body is under the control of the opposite cerebral cortex.

I am, Sirs, yours faithfully,

Wimpole-street, W., March 16th, 1902. HARRY CAMPBELL.

THE SUBJUGATION OF SMALL-POX.

To the Editors of THE LANCET.

SIRS,—I have been looking over your article in THE LANCET of the 8th inst., headed "The Subjugation of Small-pox," and I find that some of the passages therein relating to vaccination are utterly ridiculous and I cannot understand how it is that they have made their appearance in the columns of such a journal as THE LANCET. The only conclusion that I can arrive at is that they have been made by a party who probably knows nothing of the history of vaccination. The statistics and experiences with vaccination, which have been recorded since the practice became general, go to show that vaccination has not only been useless but it has proved harmful, even to the extent of causing several deaths. I see in your issue it is stated: "Every individual human being carries within himself the soil in which the germs of disease may be implanted. The soil must be made unfit for such noxious growth, and this, in essence, is what vaccination does." This statement is really very absurd, as I can myself quote cases where parties have been vaccinated and caught small-pox and *died* with it, from any time directly after the vaccination. Also, cases where parties have been vaccinated as many as six or seven times and eventually died of small-pox. Also, cases where persons have been vaccinated several times and had small-pox more than once or twice and eventually died of it.

If, as THE LANCET states, vaccination makes the human system unfit for the development of small-pox, how is it that it is possible to have cow-pox first, and catch small-pox and have them at one and the same time hand in hand with the result that the attack of small-pox proves the victor by a fatal termination? It is also stated that "every person has it in his power to render himself *safe* from an attack of small-pox." If this is so, I would be greatly obliged if you would let me know how it can be done, as I for one must confess that beyond the fact of studying the laws of health and living cleanly I am ignorant of any preventive measures having ever been introduced whereby a person may render himself immune from this filthy disease, or even modify it. You conclude: "The epidemic wave will pass in time, but very much can be done to check its career and to diminish its intensity by the general adoption of a practice of which the efficacy has been proved by the experience of all civilised nations during the century that has elapsed since its introduction."

I am not aware that anything has been *proved* as yet with regard to the benefit that vaccination has been, and I feel sure nobody else is. The practice is based upon a superstition put forward by an ignorant set of milkmaids and is not based upon any scientific foundation, and was boomed by an unscrupulous person—i.e., Edward Jenner—who purchased his M.D. for £15, and, as history informs us, he knew all the time that his "discovery" (which, by the way, was not his at all) was a complete fraud. There is a great mass of information on this subject which, if people would only give to it their unanimous attention, I feel sure that vaccination and all its evil effects would be a thing of the past.

I trust you will not find I am writing too lengthily, but I feel, after what I have learned, that I could not resist the temptation of writing you on the matter appearing in your journal.

I beg to remain, yours respectfully,

Tottenham, March 13th, 1902. A. J. WHITEHEAD.

*** We think it well to publish this effusion, for our readers seldom have the opportunity of reading such statements.—ED. L.

THE NAVAL ESTIMATES.

To the Editors of THE LANCET.

SIRS,—At page 760 of your issue of March 15th you rightly ask why deputy inspectors-general of the Royal Navy receive no increase of pay while every other class of medical officer has been so dealt with. The explanation is that the naval authorities have followed in the main the recommendations of the Army Advisory Board on the pay of the Royal Army Medical Corps. This latter board, in a stupid way, excluded the colonel's rank in the Royal Army Medical Corps from any increase of pay, although it was as urgently needed for them—indeed, more so than in the case of most medical officers. These officers are principal medical officers of districts and have much responsibility, yet in a few weeks when the warrant is issued they will receive *less annual pay* than senior lieutenant-colonels in charge of hospitals serving under their command. Further, with reference to the pay of R.A.M.C. colonels, by comparison with other colonels on the staff of the army please note the absurd position which now exists. Colonels on the staff for infantry and Royal Artillery, annual pay, £980 18*s.* 5½*d.*; colonels on the staff for Royal Engineers, £1163 8*s.* 5½*d.*; colonels on the staff, R.A.M.C., £947 9*s.* 3*d.* Could anything be more absurd? What is needed is an increase of 10*s.* per diem both to colonels R.A.M.C. and deputy inspectors-general of hospitals. This is absolutely needed for those important classes of officers.

I am, Sirs, yours faithfully,

March 17th, 1902. I.V.R.C

SOCIETY OF LICENTIATES AND MEMBERS OF THE LONDON ROYAL COLLEGES.

To the Editors of THE LANCET.

SIRS,—Why on earth the holders of the Conjoint M.R.C.S., L.R.C.P., should petition for the right to a gratuitous degree any more than any other qualified practitioners puzzles me greatly. A person holding the L.S.A. Lond., L.A.H. Dub., L.R.C.P., L.R.C.S., L.F.P.S., or M.R.C.S. has surely an equal right to an honorary M.D. I certainly think that every qualified man should be allowed this privilege. But if there is to be a gift of this sort all qualified practitioners must share alike. I am, Sirs, yours faithfully,

March 17th, 1902. JUSTITIA.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Great Increase of the Plague Epidemic.—The Continued Famine.—Density of Population and One-roomed Tenements.—Medical Appointments.

THE outbreak of plague shows an increase in nearly every province of India. For the week ending Feb. 8th there were 15,165 deaths from plague, as against 12,192 for the previous seven days and 4377 in the corresponding week of 1901. The Bombay Presidency returns 4676 deaths; Bombay city, 549; Karachi, 44; the Madras Presidency, 562; Mysore State, 576; the Bengal Presidency, 953; Calcutta, 124; the North-West Provinces, 1526; the Punjab, 5529; Kashmir, 479; and the Hyderabad State, 146. As I forecasted, there are a great increase in Bombay city and the Punjab and a marked development in Calcutta and the North-West Provinces.

It is not generally noticed that the famine increases rather than diminishes. There are now 280,000 people under relief and there was an increase of 50,000 during the past week. In consequence of the failure of the winter rains in the Punjab the Bombay Government estimated its famine expenditure during the coming financial year at 45 lakhs of rupees.

The percentage of the population occupying one-roomed tenements in Indian cities is enormous and it indicates the widespread poverty of the people. For comparison I will take London with 18 per cent. of tenements as one-roomed; Stockholm, 49·5; Berlin, 44; and Christiania, 37. Bombay has no less than 87·25 per cent. of the total tenements one-roomed, and it is estimated that about 80 per cent. of the population reside in tenements of one room, the average number of occupants to each tenement being between four and five. Compare, again, Leeds with 1·3 per cent. of tenements one-roomed; Gateshead, 10·2; Stockport, 1; and Southampton, 6·2. It was stated by the Registrar-General of England that overcrowding may be said to exist where the average number of persons per room is more than two. In Bombay city it is between four and five. To complete the percentage there are only 6·54 per cent. of two-roomed tenements and 2·36 per cent. of three-roomed tenements in Bombay, the remainder being a little more than 1 per cent. Take, again, the respective populations living under these conditions. In London 9·4 per cent. occupy one-room tenements, whereas in Bombay city it is about 80 per cent. In certain districts of the city the overcrowding and poverty are extreme. In the district of Dongri 95 per cent. of the population are in single rooms and seven other districts have over 90 per cent. living under similar conditions. The district of Kumbharwada has 598 persons to the acre, that of 2nd Nagpada 546, and that of Khara Talao 556. It is difficult to realise what these figures actually mean without a visit to these places.

Mr. J. Nield Cook has been reappointed for a term of three years as health officer of Calcutta.—Colonel A. Scott Reid, I.M.S., has been appointed to succeed Surgeon-General Franklin as Inspector-General of Civil Hospitals, Punjab, and Colonel Jubert succeeds Colonel Hutcheson similarly in the North-West Provinces.

14th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Birmingham General Hospital.

THE 122nd annual report of the hospital just presented at a meeting of governors gives some interesting details. It states that the final reports and accounts of the building committee have been adopted, and that the old building, which was sold to the corporation, has been pulled down after an existence of some 130 years. A portrait of Sir John Holder, presented by 208 governors, has been added to the valuable portraits already adorning the walls as a memento of one of the greatest benefactors of the hospital. A sum of £5131 odd was received from the Hospital Sunday Fund Committee, and the amount of £3100 from the Hospital Saturday collections. Under a recent new law six lady governors were appointed as lady visitors; two of these visit together in rotation, arrangements being made for special attention being given to the female wards and the nurses' and the servants' quarters. The board of management expresses great satisfaction at the receipt of four sums of £1250 each for the dedication of four more beds in the hospital. It is contemplated to appoint an honorary officer to take charge of the ear and throat department alone, and some further modification in the rearrangement and payment of the resident medical officers is proposed. The number of in-patients during the year was 5170 and of out-patients 62,643 or 1778 more than in the previous year. The ordinary expenditure was £24,411, an adverse balance of over £5000 remaining at the end of the year. The report of the Jaffray Branch was also submitted at the same meeting when it was shown that the income for the year was £2471 and the expenditure £2522. During the year 233 patients have been treated, the average length of stay being 14 weeks. In this branch there are 10 beds, each of which has been endowed at a cost of £1250, and the committee wisely draws attention to them as a suitable means of perpetuating the memory of relatives or friends.

Queen's Hospital, Birmingham.

The committee, in the sixty-first annual report, calls attention to certain figures which state the income to have been during the year £9606 and the expenditure £11,258; the number of in-patients has been 2189 and that of out-patients 28,895. The amount of £2000 was received from the Hospital Saturday collection during the year. Various other handsome amounts have also been received. A system of internal telephonic communication has been installed and a register of nurses for private cases has been established. Nurses who have completed four years' training and have obtained their certificates are eligible to have their names placed on the register. New residences for nurses and servants are about to be erected and in various directions improvements are to be carried out which will greatly facilitate the working details of the administration.

Birmingham Medical Institute.

The annual report, to be presented on March 25th, states that there are 202 members; during the past year 13 have resigned and 15 have joined. The committee speaks regretfully of the heavy loss sustained annually by arrears of subscriptions and recommend more decisive steps to be taken to secure a prompter payment of these. The revenue account for the year shows the expenditure as £472 15*s.*, the balance of excess of income over expenditure being £13 18*s.* 10*d.* The committee recommends that all dentists on the Dentists Register shall be eligible for admission. It also recommends that such persons (other than those on the Medical, Dental, and Veterinary Registers) whom the committee may consider entitled by virtue of their office or profession to such privileges may be admitted as subscribers.

March 18th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Formal Opening of the David Lewis Northern Hospital by the Princess Louise (Duchess of Argyll).

THE Princess Louise, who was accompanied by her husband, the Duke of Argyll, formally opened the David Lewis Northern Hospital on March 13th. The ceremony was performed in a specially erected pavilion in the grounds of the hospital which accommodated 1400 people. Her Royal Highness was presented with a handsome gold key as a memento of the occasion. The new hospital contains 220 beds and has cost £120,000. This large sum, as stated in a former issue of THE LANCET, has been provided by the David Lewis trustees (Mr. Benn Wolfe Levy and Mr. George J. Cohen). Purses were presented to the Princess, containing £1605, in response to the appeal of the committee on behalf of the Sustentation Fund. The whole cost of the opening ceremony was generously defrayed by Mr. Benn Levy, which is only one of the many generous gifts bestowed by him upon the hospital.

Death of a Liverpool Philanthropist: Tribute by the Committee of the Royal Infirmary.

Mr. William Rathbone, formerly M.P. for Liverpool, whose efforts to reform the system of nursing formerly in vogue in

workhouse hospitals have had such happy results, died at his residence at Greenbank on March 6th at the ripe age of 83 years. The late Mr. Rathbone was also instrumental in the establishment of the training home in Ashton-street in 1860, which was to provide professional nurses for the Royal Infirmary in the first instance; secondly, district nurses for the poor; and thirdly, sick nurses for private families. Within four years from the date of this new and interesting departure Liverpool was divided into 18 districts, each under the management of a lady superintendent with a nursing staff. At first the nurses lived in lodgings, but it was one of Mr. Rathbone's aims that there should be permanent district nurses' homes. Another object of his desire was to render the movement not merely local but national. In both these respects his efforts were crowned with success. The example set by Liverpool was first profited by in London, where, in 1868, Mrs. Stuart Wortley founded the East London Nursing Society. The Metropolitan and National Nursing Association was shortly afterwards established. The initiative was taken by the Council of the Order of St. John of Jerusalem, the chief promoters being Lady Strangford, Mr. William Rathbone, Sir H. W. Acland, Sir Edmond Lechmere, and Sir Robert Wigram. The object of the association was to train a body of skilled nurses to nurse the sick poor in their own homes and to establish associations for that purpose in London and throughout the country. The training home was established in connexion with St. Katherine's Hospital. In 1890 the Queen Victoria Jubilee Institute, as it was then named, was incorporated by Royal Charter. Mr. Rathbone was appointed one of the vice-presidents. District associations were established in many of the chief towns of the kingdom, the Liverpool association being affiliated with the Jubilee Institute. Through Mr. Rathbone's advocacy the fund raised in Liverpool in celebration of the late Queen's Diamond Jubilee was devoted to this charity and was applied to the provision of district homes. Mr. Rathbone, in the face of great difficulties and opposition on the part of the Select Vestry of the Parish of Liverpool, of which he was a member for 40 years, succeeded in reforming the manner in which the sick poor were nursed at the Liverpool Workhouse in the year 1868. The nursing which was carried out by paupers was a mere farce. In his enthusiasm to reform the lamentable treatment of the sick there he undertook to bear the whole of the additional expense of the new system for a term of three years. He brought down a staff of nurses trained at the Florence Nightingale School at St. Thomas's Hospital. The late Miss Agnes Jones, an experienced lady, also from St. Thomas's Hospital, was intrusted with the superintendence of this staff. After two years' trial of the reformed system, which worked out admirably, the Select Vestry had no alternative but to adopt it. To revert to the old system was out of the question. Birmingham and Manchester soon followed in the wake of Liverpool in reforming the nursing arrangements of their workhouses. The following resolution was unanimously carried at the recent meeting of the committee of the Royal Infirmary:—

> The committee desire to place on record their deep sense of the loss they and the Royal Infirmary have suffered by the death of Mr. William Rathbone. Mr. Rathbone was the senior member of the committee, having been elected in 1880, and had always taken the warmest interest in the welfare of the institution, more especially in that part of the work connected with nursing. To Mr. Rathbone the committee are indebted for the nurses' home which he built entirely at his own expense and presented in 1862 and which has proved itself of inestimable value. In the building of the new infirmary Mr. Rathbone took a most active part and by his death the institution has lost a friend it can ill afford to lose and the committee a colleague for whom they had the highest regard and esteem.

West Derby Guardians: a Costly Lunatic.

At the last meeting of the West Derby Board of Guardians it was reported that an inmate of the Rainhill Lunatic Asylum whose maintenance was chargeable to the West Derby Union had died on March 6th. The patient had cost the union close upon £900, having been an inmate of Rainhill Asylum since 1862.

Ladies' Charity and Lying-in Hospital: the School of Midwifery.

The report of the board of management of this institution states that the out-door patients during 1901 numbered 1554, as against 1523 in the previous year. By the removal of pupils to the "home" the number of beds for patients had been increased to 20, and 218 patients had been admitted (against 204 in 1900), of whom 18 were unmarried girls. There were three deaths in the hospital and three in the out-door department. A ward had been specially fitted up for the treatment of difficult cases. In the school of midwifery 39 pupils were trained, of whom 29 received certificates; 22 monthly nurses were trained by the matron; and 18 medical students took out their course of practical midwifery in the out-door department. Mr. Walter Clark had given £400 for investment, being impressed with the serious condition of the finances. The debit balance now amounts to £430.

The Medical Officer of Health on the Value of Revaccination: Interesting Facts.

At the recent meeting of the Health Committee, Dr. E. W. Hope (the medical officer of health) related to the committee an interesting incident in connexion with vaccination. A certain lodging-house had been temporarily closed and all the inmates who would submit to it were revaccinated. 71 lodgers and 14 of the servants were revaccinated. 13 lodgers, however, refused absolutely to be revaccinated. It was a remarkable and significant fact that none of the 71 lodgers or the 14 servants who were revaccinated took small-pox; but out of the 13 lodgers who refused the operation nine had already developed the disease. But the serious point in the matter was that nine people who were ultimately removed to hospital with small-pox had been roaming about here, there, and everywhere before they could be got hold of and in that way a considerable amount of mischief might have been done.

The New Parish Infirmary.

The erection of the new infirmary for the parish of Liverpool, which the Select Vestry has had in contemplation for some time past, will shortly take place. A tender of £74,650 for the purpose has been accepted.

March 18th.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Rhondda Isolation Hospital.

A WELL-EQUIPPED isolation hospital was formally opened in the Rhondda Valley on March 13th. There is accommodation in two ward pavilions and an observation block for 36 patients and the population served is about 120,000. The entire cost of the land, buildings, and furnishing was nearly £15,000, and this sum has been paid out of the current rate of the district, so that the institution has been completed without any interference from the Local Government Board, though the recommendations of the Board have in all essential particulars been adopted. The general arrangement of the buildings follows the lines usually adopted in the erection of a fever hospital but differs in some important points of detail. For example, in every bedroom, whether occupied by nurse or servant, there is a fixed lavatory basin with hot and cold water laid on—a luxury which is not so extravagant as at first sight it would appear to be, for not only is there saved the first cost of washhandstands, &c., but there is no current charge for broken jugs and basins. In the pavilions the single bed wards, although overlooked by observation windows from the nurse's duty room, can be completely cut off from the large wards and can be entered by a separate lobby from the outside. The entire flooring in one pavilion is of terrazzo. The type of slop-closet is an excellent one, and is so contrived that a bed-pan is placed in a rounded cupboard closed in with a tightly-fitting glass door, and the contents of the pan can be kept in contact with a disinfectant for any length of time and finally discharged into the soil-pipe. The pan is completely cleaned out without any risk of contaminating surrounding surfaces or of splashing the ward-maid. The inlet ventilators at the floor level are adapted for cleaning from the inside and the cavity in the walls is lined with glazed tiles to facilitate the wiping of the interior, thus preventing that accumulation of dirt which always takes place when the gratings both on the outside and inside are made immoveable.

The Prevention of Spitting.

The Public Health Acts do not appear to give any power to sanitary authorities to frame by-laws for the prevention of spitting in public places, and an attempt has been made by at least one corporation—that of Liverpool—to obtain the power by means of a private Bill. Under the Local Government Act, 1888, however, a county council may make by-laws for "the good rule and government of their county" and such by-laws are not subject to the approval of any higher authority, but merely come into force 40 days after they have been sent to a Secretary of State. The Glamorganshire County Council "in the exercise of this power has passed a by-law which reads thus: "A person shall not spit on the floor of any public carriage, or of any church, chapel, public hall, waiting-room, schoolroom, theatre, or shop, whether admission thereto be obtained upon payment or not." There is a maximum penalty of £5 for offending against the by-law. The Sanitary Committee of the Monmouthshire County Council will suggest at the next meeting of the council a similar by-law for Monmouthshire. If these by-laws are not held by the courts to be *ultra vires* it will be found that the powers of county councils are not so restricted as was at one time supposed.

A Coroner and the Home Office.

On Saturday, March 1st, a girl employed at the Aberdare Tinplate Works lost her life by falling into a tank of vitriol. Such an accident is one more than any other which ought to be inquired into by one of His Majesty's inspectors of factories. It is to be deplored, therefore, that at the inquest which was held on the following Monday the coroner should have refused to adjourn the inquiry in order to enable the factory inspector to visit the scene of the accident. Section 21 of the Factory and Workshop Act, 1901, provides that the coroner need not adjourn an inquest held in connexion with the death of a person caused by an accident in a factory or workshop if he has sent to the factory inspector a notice of the inquest to reach him not less than 24 hours before the holding of the inquest and if the majority of the jury think it unnecessary to adjourn. The coroner in this instance does not appear to have been familiar with this section of the Act and the Home Secretary, upon being questioned in the House of Commons on March 13th, gave it as his opinion that a notice received at an inspector's office on Sunday of an inquest to be held on Monday is not a proper notice as required by the Factory and Workshop Act, and he added that the coroner's refusal to adjourn the inquest appears to have prevented the jury from having all the facts of the case brought before them.

Risca Health Report.

The annual report of the medical officer of health (Dr. N. Cullinan) upon the sanitary condition of Risca, a mining district of Monmouthshire, is not very satisfactory reading. The death-rate in 1901 was 20 per 1000, and for the previous 10 years it was 17·7 per 1000. Polluted water-supplies, insufficient means of sewage disposal, lack of isolation accommodation, and overcrowding of houses all appear to contribute to the high death-rate.

Bristol Medical Mission.

The annual meeting of the friends of this mission was held on March 13th, under the presidency of the Lord Mayor of Bristol. The medical report stated that 7895 patients had been treated during 1901, including 1994 who were attended at their homes, 25,936 visits being paid. The financial statement was satisfactory, and it showed that the unfavourable balance of £372 with which the year commenced had been reduced to £30.

Sanatoriums for Phthisical Patients.

A county meeting was held at Dorchester on March 11th, under the presidency of Lord Ilchester, for the purpose of considering whether Dorsetshire should establish a separate sanatorium for phthisical patients or should combine with Devonshire and Cornwall in the erection and maintenance of such a sanatorium. On the proposition of Lord Portman, seconded by Lord Stalbridge, a committee was appointed to consider the question. The general feeling of the meeting was apparently in favour of a joint sanatorium for the three counties.

March 17th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Examination of Pathological Products in Edinburgh.

IN THE LANCET of March 1st, p. 622, reference was made to this matter. At that time the Public Health Committee of the Edinburgh Town Council had decided that no arrangement for the performance of this kind of work could be regarded as final and satisfactory which did not provide for its being done by the public health authorities, and that in view of this the present arrangement with the Royal College of Physicians should be continued. When this recommendation of the Public Health Committee came up before the town council it was debated and rejected, the council deciding that the work should be transferred to the Usher Institute of Public Health attached to the University. Following upon this a meeting of the members of the medical profession in Edinburgh was called for Tuesday, March 18th. Some 60 members put in an appearance, and the chair was occupied by Dr. G. A. Gibson. The speaking was all against the action of the town council and a deputation was appointed to wait upon the council and to represent the views of the meeting.

Close of the Winter Session.

The winter session of the classes in the Faculty of Medicine, Edinburgh, close on Friday, March 21st.

Death of Mr. Stanley Donald.

Quite a gloom has been cast over the medical students on the University of Aberdeen by the untimely death on March 17th of one of their number, Mr. Stanley Donald, son of Dr. Donald of Banff. The news of Mr. Donald's death has been received with feelings of deepest regret and genuine sympathy is being extended by all classes of the community to his bereaved relatives.

The Strachan Bursary.

The Strachan bursary for Clinical Medicine and Therapeutics has been won by Mr. Hugh S. Brander, M.A., of Aberdeen.

Presentation to Dr. T. W. Ogilvie.

A large number of the people of Torry met in the Old Free Church, Torry, on March 15th, when Dr. T. W. Ogilvie was made the recipient of a dressing-case and a sporting rifle on the occasion of his leaving for Kimberley. Baillie Meff presided and ex-Lord Provost Mearns made the presentation. Dr. Ogilvie replied suitably.

St. Andrews University and the Carnegie Trust.

The report of the University Court of St. Andrews to the Executive Committee of the Carnegie Trust has now been published. In the prefatory statement an account is given of the improvements which have already been made. The urgent needs of the University arise from the efforts which have thus been made. The average number of students at the University from 1880–81 to 1889–90 was 206. This number has gradually risen to 415 this year, through the admission of women, the addition of Dundee students, and other causes. The most urgent need of the University is the alteration and extension of the buildings of the United College. The present buildings were erected at two periods—the east wing in 1827–29 and the north wing in 1846–49. They were built to accommodate only the classes then in existence, and the class-rooms were laid out in a manner which has now become antiquated, this being especially seen in the case of the class-rooms of chemistry and physics, which are unsuitable in every way. No provision has been made for expansion. There are no separate class-rooms for the chair of education or for the lectureships which have been instituted since 1891. For necessary additions to the present buildings about £10,000 might be sufficient. For separate research laboratories in chemistry and physics £10,000 would be required. In the lectureship department the most urgent need is the establishment of a permanent lectureship in German. Lectureships in geology and applied mathematics might also with great advantage be established. The court are also of opinion that the lectureships in botany, French, history, ancient history, and political philosophy, political economy, German, geology, and applied mathematics should be permanently established in the University. As the salaries of the lecturers on those subjects

seem to the court to be inadequate they propose that the salaries should all be raised to £350, the fees to be paid into the fee fund. The sum required for this would be an annual grant of between £2500 and £2800. The scheme of university extension lectures could be reorganised provided the University had sufficient funds for the purpose. This scheme was at one time in existence, but failed solely on account of want of funds. Post-graduate lectureships and scholarships are much needed and would be of the greatest value to the university. It would also be desirable to increase the annual class grants which are made to the scientific and medical classes and which are spent by the professors on apparatus and on perishable materials used in the classes. The University has at present no means at its disposal to increase those grants. Additional assistance is also required by some of the professors. The need of additional accommodation for the library is urgent, and the grant for books has long been felt to be insufficient.

Dundee College.

In the case of the Dundee College the necessity for medical buildings is very urgent. Five new chairs and one permanent lectureship in the Faculty of Medicine of the University of St. Andrews were founded in 1898 with the condition that the work should be carried on in University College, Dundee, and in addition several lecturers were appointed by the University Court. For those new departments temporary accommodation had to be made, as there was no adequate accommodation in the existing buildings. Plans and specifications for a new building have been drawn out and tenders for the work have been received. For the whole work involved in building and equipping the School of Medicine the cost may be summarised as follows: for buildings and fittings, a sum of £6000; for equipment, a sum of £5000. Reconstruction of the existing buildings is also much needed, and it is hoped that this may be shortly carried out at a cost of from £30,000 to £40,000. A scheme spreading the expenditure over seven years is suggested, the items of capital expenditure being as follows: medical buildings, fittings, and equipment, £11,000; chemistry extension, building, and equipment, £3000; engineering extension and equipment, electrical engineering, &c., £42,800; botany, £500; zoology, £500; geology, £500; library, £1000; total, £66,100. In addition to this annual grants are desired for the maintenance of laboratories and museums, as well as for books and periodicals. The most urgent needs of the University of St. Andrews may therefore be summarised as follows—viz.: 1. (*a*) St. Andrews.—The alteration of the present buildings and the erection of additional new buildings, including laboratories of research for chemistry and physics. (*b*) Dundee.—The erection and completion of the medical buildings. 2. The provision of additional accommodation for the University library in St. Andrews and a larger annual sum for expenditure on books and scientific journals. 3. A lectureship in German. 4. A lectureship in geology.

March 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The National Hospital for Consumption.

THE annual meeting of the supporters of the National Hospital for Consumption, Newcastle, co. Wicklow, was held on March 14th in the hall of the Royal College of Physicians of Ireland. His Excellency the Lord Lieutenant of Ireland honoured the meeting by his presence, and in proposing the adoption of the report he delivered a most interesting speech in which he alluded to a former meeting in that hall over which he had presided and at which the question of tuberculosis was discussed in reference to the congress which had since taken place in London and which had been initiated by His Majesty the King. The President of the Royal College of Physicians of Ireland, Sir Christopher Nixon, seconded the motion and stated that he looked upon it as a matter of regret that His Most Gracious Majesty had seen fit to abandon his visit to Ireland, as he would have got not only a warm but an enthusiastic reception in that country. Referring to the very favourable statistics contained in the hospital report, he said that he took a deep interest in the proposed sanatorium for the consumptive poor of the north side of Dublin, in connexion with which a special inducement would soon be offered to which the general public and the corporation itself would find it very hard to refuse support. In reply to a vote of thanks to His Excellency, proposed by Dr. J. Magee Finny, the Lord Lieutenant said, in allusion to the remarks of the President of the Royal College of Physicians of Ireland, that nobody regretted the abandonment of the King's visit more than he did, and he added that he would go further and say that nobody would share that regret more than His Majesty himself, with whom the idea of the visit had originated.

Notification of Infectious Disease in Dublin.

After a very long delay the Urban District Council of Blackrock has decided to adopt the Notification of Diseases Act, 1889, and the Prevention of Diseases Act, 1900, in the township. On March 11th Mr. D. E. Flinn, the Local Government Board medical inspector, addressed the councillors of Kingstown and endeavoured to induce them to adopt the same measure. In that case the matter was referred to a committee for further consideration and it will therefore be probably delayed much longer. It seems a misfortune that these Acts, which are compulsory in England, should still continue to be only voluntary here.

Small-pox in Belfast.

On March 13th a man who had been arrested in Govan (Glasgow) on a charge of bigamy and had been brought over to the county gaol in Belfast developed signs of small-pox, which he had contracted in Glasgow, and was immediately removed from the prison to the Belfast Union Infirmary. The attack is, so far, a mild one.

Death of Mr. James Tomb, M.D., M.Ch.R.U.I.

I regret to announce the death of Dr. James Tomb which occurred on March 13th at his residence in Crumlin-road, Belfast, after an illness of a few days, from pneumonia secondary to influenza. After studying at Belfast Dr. Tomb graduated M.D. of the Royal University in 1887. For a time he acted as assistant to Dr. Stewart of Portadown (one of whose daughters he married). Subsequently he settled in the north end of Belfast, where, by the utmost attention to, and care of, his patients, he developed a large working-class practice. He leaves a widow and two children. Dr. Tomb was only 41 years of age. He was buried in Belfast on the afternoon of March 15th, an immense number of friends attending the funeral.

The Lisburn Workhouse.

The inspector of the Local Government Board reports in reference to his official visit to the workhouse at Lisburn on Feb. 5th and 6th that while that institution affords sufficient accommodation as to size, it does not do so in regard to internal arrangement. Separate wards for consumption and for specific disease have not yet been provided in the infirmary, and there are neither day-rooms for convalescent patients nor an operating table. The infirmary in respect of size is not adequate to the wants of the union. The inspector suggests that the vacant auxiliary hospital at the front of the workhouse should be used for the accommodation of consumptive and convalescent patients. He recommends that the guardians should send samples of milk and butter for analysis and that modern grates (to prevent waste of coal) should be provided. He hopes that the drainage of the workhouse will receive attention and that a vehicle will be provided to bring patients to the fever hospital. The inspector considers the windows to be totally unfit for a hospital and he recommends the gradual introduction of a new type of beds. He points out that the infirmary floors are in bad order. Altogether the Lisburn guardians have a good deal of work before them if they make the necessary reforms suggested in this report.

March 18th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

An Election Circular.

WITHIN a few weeks a general election will be held throughout France. Preparations for the struggle have already begun and committees are being formed to support

the candidates of the different parties. Various leagues are organised and electoral circulars are being sent out. One of these which I have seen is an astounding document such as it is hardly possible to believe could have been sent out at the beginning of this century, one, moreover, which is not the work of a practical joker but which is issued by a genuine committee. The committee is composed of provision merchants whom the laws destined to check adulteration, although such laws are very mild and are not applied with any rigour in France, annoy in their nefarious work. These provision dealers propose to take vengeance for the discredit thrown upon articles supplied by them by systematically voting against all Parliamentary candidates who happen to be medical men. Many deputies are medical men, but most of them do not practise and their indifference to all matters which are of interest to the medical profession and even to the question of public health is notorious. All the same the circular in point is worthy of reproduction. It runs thus: "Electors and business men! On the eve of the elections the friend of the small dealers calls your attention to the present very grave danger—namely, the invasion of the Chamber of Deputies by medical men. Oppose medical candidates, replace them by commercial men. And why? Because the trend of hygienists is to exercise an insupportable dictation concerning the supplying of food. To increase their authority these hygienists do not hesitate to exaggerate in an absurd manner the importance of food frauds, and then they pose as saviours of human life. Thus sometimes these hygienists, who are nothing but quacks, accuse purveyors of milk, sometimes wholesale provision dealers or rather grocers. No branch of food-supplying is free from their accusation of fraud and falsification. Defend yourselves, then, against the calumny. The business of food-supplying is already too much discredited, has been for some years too persecuted by the mountebanks of hygiene. They must be given a lesson. Food purveyors of Paris and the provinces! Vote against medical men. Let all parties choose other men to uphold their flag. Let them, for instance, choose food purveyors."

Sudden Death.

At the meeting of the Academy of Medicine held on March 11th M. Lancereaux read a very interesting and surprising paper. He had made 50 post-mortem examinations on the bodies of individuals who had died suddenly and whose death had been attributed, wrongly as it turned out, to embolism or to the rupture of an aneurysm. M. Lancereaux was surprised to find that all the organs were perfectly healthy, particularly the heart, which was empty, as is observed in physiological experiments in the production of death by bulbar anæmia. M. Lancereaux, therefore, had to seek elsewhere for the cause of death occurring while the patient was apparently perfectly well and he attributed it to a gastric reflex which had been observed chiefly in gouty dyspeptics. This form of dyspepsia brought about great irritability of the heart even when it was otherwise normal but especially when the heart was at all dilated or was much overlaid with fat; it was well known that indigestion might easily produce cardiac palpitation, weakness, or even syncope. A sharp blow on the pit of the stomach or the ingestion of ice-water was able to bring about sudden death by arrest of the heart owing to a reflex shock originating in the stomach. M. Lancereaux, starting from this point of view, made the remark that most sudden deaths occurred at very significant times of the day, that is to say, from four to five hours after midday or between two and three o'clock in the morning. They, however, rarely occurred in the morning between 10 and 11 o'clock—that is to say, they occurred at such a distance after a meal that digestive troubles were beginning to be felt in dyspeptics who suffered from dilated stomach. The way to ward off this catastrophe was to order dyspeptics an appropriate diet, such as grilled meat, eggs, and green vegetables; they should drink nothing but water or should live entirely on milk and they should have their meals at regular intervals. All acid substances should be forbidden and a little bicarbonate of soda should be taken. The excitability of the nervous system could be modified by bromides and opium. If there was much cardiac palpitation a little digitalis might be given, and life must be taken quietly. If syncope came on rhythmical traction of the tongue, slapping on the face, and injections of ether, caffeine, and above all of morphia might be given.

March 18th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Attendance at McGill University.

THE total number of students attending classes at McGill University during the present session is put down at 1114, divided amongst the different faculties as follows: law, 60; medicine, 490; arts, 294; applied science, 254; and veterinary science, 16. In 1901 the total number of degrees conferred was distributed as follows: law, 17; medicine, 93; arts, 42; applied science, 51; and veterinary science, three.

Death of a Prominent Alienist.

Dr. Richard Maurice Bucke, superintendent of the Asylum for the Insane at London, Ontario, died on Feb. 19th. About 11 o'clock on that evening before retiring for the night he took a stroll on the verandah of his residence, when he slipped accidentally upon some ice, the fall resulting in immediate death. Dr. Bucke was born in 1837 at Methwold, Norfolk, England, at which place his father was curate. Coming to Canada at an early age, he graduated in medicine at McGill University in 1862 as gold medalist of his class. He entered the Ontario asylum service in 1876 as superintendent of the Hamilton Asylum, being transferred to the superintendency of the London Asylum in the following year, a position which he held up to the time of his unfortunate death. He was a life-long friend of the poet Walt Whitman and his literary executor, and he had the largest and best Whitman collection in the world. Dr. T. A. McCollum of Dunnville, Ontario, a prominent surgeon of the Niagara Peninsula, has been appointed as his successor.

An Association of the Hospitals of Ontario.

Representatives from the leading hospitals of the province of Ontario recently met in Toronto for the purpose of forming the Ontario Hospital Association, the object being to insure united action in guarding the interests of the hospitals in the province. The movement was instituted by Ottawa hospital authorities, and has been brought about owing to the falling-off in hospital funds. The cause of this is laid at the door of the Ontario Government which lately cut down the grant to 30 cents per day, and further to the fact that the Succession Duties Act bore so heavily upon the estates of wealthy citizens that nowadays these dying left nothing to the hospitals as formerly, believing that a portion, say 10 per cent., of the duties were handed over to the hospitals by the Government. The new association will meet every year in Toronto at the time of the meeting of the provincial legislature. The officers will consist of a president, five vice-presidents, a secretary-treasurer, and a committee of seven. Dr. John Ferguson of the Western Hospital, Toronto, was elected the first secretary-treasurer.

A New Medical Building for Toronto University.

The medical department of Toronto University will erect a fine new building in the Queen's Park, adjoining the other university buildings, at a cost of $125,000. It will be constructed on the same plan as the new medical building of Harvard University. The laboratories will be on the "unit system," each one being 23 by 30 feet and capable of being enlarged or decreased in size to suit large or small classes. The faculty will probably lease a portion of the building when completed to the arts department of the University.

The Efficacy of Vaccination Proven at Montreal.

Since May last, according to Dr. J. E. Laberge of the Montreal Contagious Diseases Hospital, there have been in that institution 240 cases of small-pox, and in no instance had any of the patients been vaccinated before contracting the disease. Besides, a staff of 18 persons, medical men and nurses, have been in daily and hourly contact with these small-pox patients, and not one of them has contracted the disease. The special order of the Provincial Board of Health of Quebec with regard to compulsory vaccination has been pretty generally obeyed throughout the province, as over 347 municipalities have notified the board that they have adopted this by-law.

Montreal Medico-Chirurgical Society.

During the past year this society has secured fine new commodious quarters, which comprise a large meeting-hall capable of seating 125 persons, a cloak-room, a library-room, a reading-room, and a committee-room. All are in

the charge of an attendant. In the reading-room all the important medical journals are kept on file and the rooms are open to members from 2 to 6 P.M. and from 8 to 11 P.M. The society recently discussed the proposition to have medical inspection of schools for the city of Montreal. No definite arrangement was recommended as the whole matter is to come up again at another meeting shortly. The stated meetings of the society are held on the first and third Fridays of the month from October to June inclusive. The officers for the present year are as follows: President, Dr. George E. Armstrong; Vice-President, Dr. H. S. Birkett; treasurer, Dr. J. M. Jack; secretary, Dr. Alfred T. Bazin; trustees, Dr. G. A. Brown, Dr. F. J. Shepherd, and Dr. James Perrige.

The Undergraduates' Medical Society of McGill.

This society was organised in 1879 through the influence of Dr. William Osler and Dr. Frank Buller, and shortly afterwards it undertook to support a reading-room. That it commenced on a very small scale is apparent seeing that all the literature provided at that time was one daily newspaper and the *Illustrated London News*. In 1886 the faculty took the reading-room under its wing and since that time each medical student is charged $1 for its maintenance along with his other dues. In the new medical buildings recently constructed the society is provided with a very handsome reading-room where all the leading daily and weekly papers of the Dominion of Canada and a few of the United States are on file. In addition there are supplied all the leading medical and scientific journals. Very recently a beautiful tablet has been erected in this reading-room to the memories of Harold L. Borden, B.A., of Canning, Nova Scotia, and A. Patrick O'Reilly of Hamilton, Ontario, both of whom lost their lives in active service in South Africa in 1900. Both were medical students, sons of two prominent medical men of the Dominion.

A New Hospital in New Brunswick.

The Chipman Memorial Hospital was opened on the afternoon of Feb. 4th at St. Stephen's, N.B., by the Hon. L. J. Tweedie, Premier of the Province. This hospital, which is situated on the banks of the St. Croix River, a short distance below the town, comprising building, grounds, and modern equipment, has been presented to the town by Lady Tilley, wife of the late Sir Leonard Tilley, formerly Lieutenant-Governor of the Province, and other heirs of the Chipman Estate. It has accommodation for 20 patients, and on the day of its dedication the men of St. Stephen's presented to it $1000.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

A Bill to Establish a National Board of Public Health in the United States.

A BILL has been introduced into the House of Representatives of the United States to establish a National Board of Public Health. It is proposed that such board shall consist of a commissioner and of a representative from each State and territorial board of health, the surgeons-general of the army and navy, the supervising surgeon-general of the Marine Hospital Service, or such other medical officer from either service as may be designated by the chief thereof. The duties of the commission will be to supervise all matters affecting public health and especially the laws relative to quarantine. Much of the work which the proposed board would undertake is now efficiently performed by the United States Marine Hospital Service, and for this reason it is thought by many that the creation of a national commission is unnecessary.

Registration of Deaths and Mortality Statistics of the United States.

The lack of uniformity in the several States of the Union in the methods employed in registering deaths and collecting vital statistics has long been an obstacle in the way of gathering accurate statistics of mortality in the United States. In this country registration heretofore has been done better or worse, or has been wholly neglected, according to the will of separate and independent States, and always without regard to the practice of neighbouring States or to the broader utility of registration for certain purposes of the Federal Government. The United States Census Office, together with a committee of the American Public Health Association, has concluded to take up the matter and to endeavour to introduce the needful changes into the system. The committee of the American Public Health Association has published a circular in which it is stated that it is very desirable that Congress, the United States Census Office, the medical departments of the Government, the legislatures of all the States, their boards of health and registration bureaus, municipal boards of health, and all sanitary, medical, statistical and economic associations should unite in efforts to extend in this country the practice of accurate registration of deaths and the publication and utilisation of the valuable data resulting therefrom. The committee has drawn up what it deems to be the essential requirements of a law for the registration of deaths and the collection of mortality statistics.

Amended Vaccination Act for New York State.

The existing regulations in regard to vaccination in force in New York State will be rendered far more stringent if the Vaccination Bill in its amended form now before the State Legislature becomes law. The Bill in question provides for the compulsory vaccination of school-children, making it incumbent upon superintendents and principals of schools to refuse permission to enter schools to any children who have not been vaccinated or revaccinated within a certain period. Another clause of the Bill provides that every person in a house in which small-pox has broken out shall be vaccinated, and in case of refusal it allows a local board of health to quarantine for 14 days the recalcitrant individuals. The heads of colleges, hospitals, public institutions, fire and police departments, factories, business-houses, &c., are made responsible for the vaccination and re-vaccination within a certain period of those under them, neglect to comply with these regulations being visited with heavy penalties. The people of New York State, and, indeed, of the United States generally, are in the main conscious of the great benefits conferred by vaccination and seem determined to insist upon the operation being performed efficiently and often enough to check the spread and to modify the virulence of small-pox.

The New York State Charities Bill.

Much dissatisfaction has been aroused throughout New York State by the action of the governor in introducing a Bill whereby the patronage and control of the 14 State charitable and correctional institutions will be taken from the State Board of Charities and lodged with the Executive at Albany. The State Board of Charities has managed these institutions for many years and with satisfactory results, and the resolve of the governor to dispense with its services has given rise to protests not only from the medical journals, but from the lay journals also. The press has condemned the governor's action with remarkable unanimity and on March 3rd the State Board of Charities gave the governor to understand that the members of the board could not conscientiously accept the essential provisions of his Bill; they pointed out that they were opposed to stripping the local boards of managers of their present powers, but would favour any Bill aimed to extend and to safeguard the present system. As a result of the ground taken by the State board, the governor and the special committee of legislators which drafted the proposed Charities Bill could not agree with the members of the State board on a measure which the board would stand for. The chief objection brought against the Bill is that it will place the charitable and correctional institutions of the State, including lunatic asylums, directly in the hands of politicians who it is feared may use the patronage attached to them for political purposes and not for the good of the inmates.

Crusade against Vice in Buffalo.

The ministers of religion and the police authorities of Buffalo have come to an agreement whereby disorderly houses are to be restricted within certain limits, and all thoroughfares are to be kept free from the vicious element. This departure on the part of Buffalo, however, is not a new or untried one in the United States. For nearly 20 years in Minneapolis, Minn., there has been in force a like arrangement. All the saloons have been, and they are now, in an area confined to six blocks in width from the Mississippi River on each side, and houses of prostitution in a narrower limit. This district is regularly patrolled by the police; keepers of houses

of ill-fame are regularly fined, and it is asserted by inhabitants of the far western city that the adoption of the system has been attended with complete success and that no city of the Union can show a cleaner street record than can Minneapolis. The proper government of American cities is a most serious question and one that is arousing the attention of philanthropists and sanitarians from a moral and physical standpoint. The control of prostitution is an especially difficult feature with which to deal successfully, and in no city are the obstacles in the way of solving the problem more obvious than in New York. A committee of 15 was appointed to investigate the matter and to suggest remedies and it has lately published a volume dealing exhaustively with the subject. The working of the arrangement come to at Buffalo will therefore be watched with interest throughout the United States, and if successful there other large cities may be induced to enter into a like arrangement.

Report on Mosquitoes in Baltimore.

In the February-March number of the *Bulletin of the Johns Hopkins Hospital* is a report by Mr. Leonard K. Hirshberg and Mr. Gustavus C. Dohme on the result of their investigations of the distribution of the anopheles claviger in the vicinity of Baltimore. They place no faith in the use of oil as an exterminator of the larvæ of the mosquitoes and declare that it is hopeless to expect to eradicate malaria by such means. In concluding their observations these investigators say: "Of special importance is the careful screening of doors by wire gauze or mosquito netting as suggested by Celli. Where this cannot be done fitting the beds with netting will offer security, inasmuch as most anopheles bite at night." They recommend that cases of malarial infection shall be reported to the City Board of Health just as are the contagious diseases, thus enabling precautions against the spread of malaria to be carried out under the proper supervision.

Mosquitoes and Dengue.

Dr. Harris Graham, professor of pathology at the American College, Beyrouth, Syria, contributed to the *Medical Record* of Feb. 8th an article on the Mode of Propagation and Pathology of Dengue. Dr. Graham points out that since the epidemic of 1889 a strong opinion has prevailed among those who have given the matter careful study that dengue is a purely contagious disease, but that up to the present no logical explanation has been offered of the soundness of this theory. He therefore at the beginning of the epidemic which has prevailed in and around Beyrouth since July, 1901, commenced a series of experiments in order to determine, if possible, whether the culex which exists in perfect swarms in the city could carry the dengue from person to person. The careful experiments carried out by Dr. Graham convinced him that the mosquito was the means of carrying the disease and he was therefore forced to the conclusion that the cause must be sought in the blood. The blood of patients whose constitutional symptoms were marked and in whom the course was typical were systematically examined and the parasite was, in Dr. Graham's opinion, definitely isolated. It is described as resembling in many ways the plasmodium malariæ, but its cycle of production or formation in the human blood is so much longer than that of the malarial parasite that the changes in its life-phase come more slowly and are more difficult to follow. Dr. Graham concludes his paper by saying: "It may not be absolutely proved that this hæmatozoon is the cause of the dengue, but its constant presence in the red blood corpuscle during the fever, its resemblance to the parasite of the Texas cattle fever, its likeness in manner of growth and mode of propagation (by the mosquito) to the malarial parasite, all point in the same direction and lead us to believe by analogy, if by no other way, that in this parasite we have the cause of dengue."

March 10th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Australasian Science Association.

THE meeting of the Australasian Association for the Advancement of Science was held at Hobart in the first week in January. The President, Professor F. W. Hutton, F.R.S., Director of the Christchurch (N.Z.) Museum, chose as the subject of his address "Evolution and its Teaching." He explained the theory of the evolution of the constellations from the cosmic dust and said it was possible that the creation of the cosmic dust itself occurred less than 200,000,000 years ago. He then traced the evolution of life on the earth from protoplasm. The first germ of ethical evolution was in parental affection, and morality appeared to have arisen from sympathy; and the long and constant use of formal morality made it instinctive and gave rise to conscience. It could not be thought that this process was confined to the earth and long after the sun was cold and dark other stellar systems would probably continue the development of life and mind. The conclusions of science showed that mind pervaded all matter, and in the composition, size, and position of the earth there was overwhelming evidence of design. Physical evolution, biological evolution, and psychological evolution were still going on. So far as the earth was concerned physical evolution had reached its optimum, so had biological evolution in man. Psychological evolution was still going on and the development of human mind was still in its infancy. This psychological evolution was not making for happiness, and ethical evolution seemed leading up to something not displayed on earth and which they could only conceive as a further development when mind was freed from matter.—The President of the Hygiene Section was Sir T. N. Fitz-Gerald, C.B., F.R.C.S. Irel., whose address was entitled "The Nature of Disease." Of the extensive causes of disease heredity, he said, stood foremost but did not occupy the important position now that it did formerly. Nervous affections, from insanity to migraine, were transmissible. Deformities and disfigurements due to defective development were handed on, though uncertainly. Deformities were rather the result of what horse-breeders called a "nick." Two perfectly healthy people free from any deformity married and their entire family might display evidences of imperfect development, as cleft palate, auricular appendages, &c. Their offspring in turn might beget healthy, normal children. It was doubtful if intermarriage had much to do with the appearance of deformities. Heredity formed a small factor in the causation of tuberculosis and assurance companies loaded lives on this account in a most reckless and senseless manner. As to cancer, also, the tendency is to doubt its hereditary character and to assign apparent inheritance to coincidence or to infection. It had yet to be brought home to the public that lunatic asylums, hospitals, and benevolent asylums were charged with the consequences of syphilis, which still stalked rampant through the land, while if controlled by the regulation of the class by which it was spread tabes and general paralysis might be almost wiped out. Another scourge of society and cause of disease was alcoholism. Habitual drunkards should be regarded as pests, liable to be removed and to be confined in the same manner as fever patients. Among the poorer classes the habit of drinking was largely acquired from the monotony of their lives, and more good would be done by affording better resources in the way of amusements than by restrictive legislation.—Mr. T. A. Coghlan, Government statistician of New South Wales, contributed an interesting paper on Child Measurements, giving the results of his investigations of a number of children attending the Sydney schools. He found that the children of the non-labouring class were physically more robust than those of the labouring class—that hindrances to growth showed themselves at an early age, and that many of the conditions that made for evil were remediable. The results of measurements of height corresponded with observations elsewhere. As to weight the Sydney boys were slightly heavier than English boys up to nine years—thence to 12 years they were slightly lighter. By 12½ years the Australian boy regained his superiority in weight and at 13 years he was about three pounds heavier, and the advantage was maintained during adolescence. The prevailing colour of the skin and hair was blonde and the eyes were most frequently blue. The chest expansion was small compared to that of European children.—At the first meeting of the association the following resolution was passed:—

That the sanitary legislation of every State should contain provision for the notification of phthisis as an infectious disease and for the prevention of its spread by the taking of proper precautions, especially through the sputum of consumptives; that there should be provided in every State at least one sanatorium where tuberculosis patients could be treated on terms within the means of all.

The Queensland Branch of the British Medical Association and the Brisbane Associated Friendly Societies' Medical Institute.

At the January meeting of the Queensland Branch of the

British Medical Association the question of meeting in consultation the medical officers of the Associated Friendly Societies' Institute at Brisbane was discussed. It was stated that the establishment of the institute had enabled the friendly societies to dictate terms to the medical profession, and the objections to it were (1) that the sum paid per member to its medical officers was less than that paid to medical officers of friendly societies not connected with the institute; and (2) that no one was excluded from membership of the institute, whatever his income or position might be. It was finally resolved unanimously:—

1. That members of the branch shall not meet in consultation the medical officers of the Brisbane Associated Friendly Societies' Medical Institute.
2. That members of the branch shall not meet in consultation medical men who meet in consultation the medical officers of the Brisbane Associated Friendly Societies' Medical Institute.
3. That, except by a special resolution of the branch at a meeting called for the purpose, the members of the branch shall not meet in consultation medical men who now hold, or shall have held, the position of medical officer to the Brisbane Associated Friendly Societies' Medical Institute.
4. That Resolution 3 shall also apply to medical men referred to in Resolution 2.
5. That the foregoing resolutions be not put into effect until they have been ratified at the next general meeting (Friday, Feb. 7th, 1902) and until each member of the branch in Brisbane has been made acquainted with them.
6. That a printed copy of the foregoing resolutions be sent to every medical practitioner in Brisbane.

Feb. 11th.

Obituary.

SIR WILLIAM GUYER HUNTER, K.C.M.G., M.D. ABERD., F.R.C.P. LOND., F.R.C.S. EDIN.

WE much regret to announce the death of Sir William Guyer Hunter, which occurred on Friday, March 14th, at his residence, Anerley-hill, Upper Norwood.

Sir William Guyer Hunter was the eldest son of the late Mr. Thomas Hunter, of Catterick, Yorkshire, and was born in 1829, being in his seventy-third year at the time of his death. He received his education at King's College School and King's College Hospital, and in 1849, at the earliest possible opportunity, he became a Member of the Royal College of Surgeons of England, graduating later in Medicine at Aberdeen University and taking, also, the Fellowship of the Royal College of Surgeons of Edinburgh. In the following year he entered the medical service of the Bombay Presidency, where he was destined to take part in stirring events. He served through the second Burmese war of 1852–53 which led to the annexation of Pegu, and during the campaign nearly fell a victim to a severe attack of cholera. For his services in this war he received a medal with clasp. Five years later came the Indian Mutiny, through which he served as a surgeon, obtaining brevet rank. At the time of the mutiny he was civil surgeon in Upper Sind, and the strain upon him compelled him, when the sepoys had been suppressed, to return home on furlough. He was recalled to take up a vacant professorship in the Grant Medical College, Bombay, when he was also elected physician to the Jamsetjee Hospital. In 1876 he was appointed principal of the Grant Medical College and in 1877 was specially promoted to the rank of surgeon-general. In 1878 he made a valuable report to the Government of Bombay upon the famine fever of the previous year, for which he was specially thanked by the Indian Government. It is a melancholy coincidence that the brilliant Anglo-Indian, Sir Richard Temple, whose death took place on the day following the death of Sir William Guyer Hunter, received the report in question, for he had just been made Governor of Bombay, in recognition of his excellent work in connexion with the famine troubles. In 1879 Sir William Guyer Hunter was appointed by Sir Richard Temple Vice-Chancellor of the University of Bombay—a distinction, at any rate at that time, usually reserved for members of the Legislative Council and judges of the High Court in India. In 1880, on a new organisation of the Indian Medical Service being promulgated, Sir William Guyer Hunter retired from the service, leaving behind him an admirable record of arduous and enlightened labour. A highly complimentary order referring to him was issued by the Government, a public address was presented to him by the inhabitants of Bombay, and a subscription was raised to found a scholarship and to present him with his portrait to be placed in the Grant Medical College.

In 1883, very soon after his retirement from the service, he was sent to Egypt by the British Government to inquire into the cause of epidemic cholera in Egypt. His great experience of cholera during his service in India made him well qualified to discharge the mission. Cholera, it may be remembered, had broken out with suddenness and severity at Damietta, and at Mansourah, some 30 miles up the Nile, and the position of Damietta on the Mediterranean coast made it of the utmost importance to ascertain the origin and nature of the outbreak. Surgeon-General Hunter was prompt to speak. Within a few weeks of his arrival in Egypt he submitted a brief report, stating that cholera of the ordinary Indian type had to be dealt with immediately by the formation of an adequate sanitary service; that "quarantines" and "cordons" had never more completely failed to arrest the disease than they had done in Egypt; and that to talk of sanitation in connexion with Cairo and other Egyptian centres of population was an abuse of words. His subsequent full reports to Lord Granville and certain papers read before the Medical Society of London and the Epidemiological Society came in for a great deal of criticism. He repudiated entirely the contagiousness of cholera, and regarded the epidemic in Egypt as an exacerbation of an endemic form of cholera which had been existent in the country for at least 30 years. His views were obviously based upon insufficient and untrustworthy evidence, while, curiously enough, the cases that he recorded went to prove exactly the influence of contagion and the spread along lines of human intercourse which he denied to exist. But the good done by his vigorous indictment of the unhealthy conditions prevailing in Cairo remained, and the question as to whether he had misinterpreted the meaning of facts which he had laboured to collate did not detract from that good. Surgeon-General Hunter was made a K.C.M.G. for his services on this occasion.

In 1885 Sir William Guyer Hunter entered Parliament as Conservative member for Central Hackney and was returned again in the following year for the same constituency, for which he sat until 1892. He was a sound but infrequent speaker, contributing to debate only when his special experience made his views of value.

He was twice married—firstly to a daughter of the Reverend C. Packe, vicar of Ruislip, and, secondly, to a daughter of Mr. J. Stainburn.

Sir William Guyer Hunter was honorary surgeon to His Majesty the King and consulting physician to Charing Cross Hospital. All medical men will feel that in him they have lost a colleague who did their profession great credit. A shrewd and laborious man, he made a great reputation for himself in India while still a young man, and until the close of his life he worked hard in responsible positions for the good of his generation.

SURGEON-GENERAL JOHN ROBERT THEOBALDS,

LATE INDIAN MEDICAL STAFF, MADRAS PRESIDENCY.

SURGEON-GENERAL J. R. THEOBALDS died at his residence at Weston-super-Mare on March 7th in his eightieth year. The deceased was born in India, and in 1848 he entered the Indian Medical Staff, and retired in 1880, after 32 years' service, with the rank of Surgeon-General. Surgeon-General Theobalds whilst in the service was engaged in the pursuit of the notorious Tantia Topee during the Indian Mutiny. His skill as a surgeon and his management of the various hospitals over which he had the control are spoken of in the highest terms in the Government reports. On his retirement he settled in Weston-super-Mare where he took the greatest interest in municipal matters and gave his personal and financial support to a large number of the local benevolent institutions. Surgeon-General Theobalds was of a genial and kindly disposition and will be much missed in Weston-super-Mare. He died after a short illness from cardiac failure following an attack of pneumonia. The funeral, which took place on March 13th, was largely attended.

THE *Star* points out that the pages of "Burke" contain the names of two persons, both medical men, who are in their ninety-fourth year—Sir Charles Nicholson, M.D., who held for a considerable time a distinguished position in the Legislature of New South Wales, and received a baronetcy in 1859; and Sir Henry Pitman, M.D. Cantab., who was for many years registrar of the Royal College of Physicians of London, and who was knighted in 1883.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Heidelberg:* Dr. Hermann Stendel has been recognised as *privat-docent* of Medicine.—*Jena:* Dr. Eggelling of Strasburg has been appointed Prosector in the Anatomical Institute.—*Königsberg:* Dr. O. Ehrhardt, assistant surgeon in the Surgical Clinic, has been recognised as *privat-docent* of Surgery.—*Munich:* Dr. F. Wanner has been recognised as *privat-docent* of Otology.—*Rostock:* Dr. Wolters of Bonn has been appointed Extraordinary Professor of Dermatology.—*Strasburg:* Dr. Weidenreich, assistant in the Frankfort Institute for the Investigation of Cancer, has been appointed First Assistant in the Anatomical Institute.

ST. MARY'S DAY NURSERY AND HOSPITAL FOR SICK CHILDREN, PLAISTOW.—In connexion with this institution there have been during the year 1901 742 in-patients, 3553 out-patients, 14,664 casualty patients, and 71,010 attendances. The attendances show an increase of 11,766 over last year's figures. The average cost per bed occupied per year was £59 7*s.* 3½*d.* Efforts are being made to raise funds for the building of a new hospital, for which not less than £25,000 will be required.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, VICTORIA PARK.—The annual general meeting of the governors of this hospital was held on March 4th at Gresham College, when Sir E. Sassoon, M.P., treasurer, presided. The report stated that the heavy decrease in the amount received from legacies, together with the greatly-increased number of in-patients and out-patients, accounted very largely for the unavoidable sale of £2000 stock to meet the current expenses of the year. The chairman, in moving the adoption of the report, said that during the year 966 in-patients were admitted as new cases, showing an increase of 134. In the out-patient department 9678 new cases were treated, showing 62,931 attendances, 2128 in excess of those of the year 1900. A nurses' home was to be built within the precincts of the hospital at a cost of from £8000 to £9000.

ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW.—The report of this hospital for the year ending Dec. 31st, 1901, stated that during the period under notice the outdoor patients treated at the dispensary numbered 8247, involving 28,990 separate attendances. The dispensary sisters and nurses paid 1439 special visits to patients at their homes to see that the instructions of the medical men were properly attended to and to supply nourishment in the more necessitous cases. 810 patients were treated at the hospital, and there was an average of 100 cases on the books as awaiting admission at the close of every month. Good work is done by this institution but it is greatly hampered in its ministrations through want of funds. The income is far short of the ordinary expenditure. Moreover, the increased work of the hospital has necessitated the provision of a country branch which is in course of erection.

CRAIG COLONY FOR EPILEPTICS.—The eighth annual report of this institution, founded in honour of the late Oscar Craig of Rochester, N.Y., the objects of which are to "secure the humane, curative, scientific, and economical care and treatment of epileptics," states that on Oct. 1st, 1900, the colony had 612 patients, 329 of whom were males and 283 females. During the year 259 patients were received—198 males and 61 females; while during the same period 81 were discharged, 34 died, and 13 were transferred as insane to State hospitals. On Sept. 30th, 1901, there were 743 patients in the colony, 440 of whom were males and 303 females, making an actual gain of 131 for the year. The death-rate for the year, it will be noticed, is less than 5 per cent. The cost of maintenance per head during the year was $762 less than in the previous year. In connexion with the colony Dr. Frederick Peterson offers a prize of $200 for the best contribution to the pathology and treatment of epilepsy, originality being the main condition. The prize is open to universal competition, but all manuscripts must be submitted in English. Essays will be judged by a committee of three members of the New York Neurological Society and the award will be made at the annual meeting of the board of managers of the Craig Colony on Oct. 14th, 1902. The essay must be accompanied by a sealed envelope containing the name and address of the author and bearing on the outside the motto or device which is inscribed upon the essay. The successful essay will become the property of the Craig Colony for Epileptics. Manuscripts should be sent to Dr. Frederick Peterson, 4 West 50th Street, New York City, on or before Sept. 1st, 1902.

FEMALE SANITARY INSPECTOR.—The Rochdale Town Council are making what is for them a new departure in appointing a female sanitary inspector at "28*s.* a week and uniform." The chairman of the Health Committee gave good reasons for proposing the appointment, saying that while a very large reduction in the death-rate had taken place during the last 20 or 25 years, there had been very little difference in the deaths of infants. "A female sanitary inspector was better able to approach parents and recommend to them suitable food, clothing, and other matters with respect to infants than a male inspector could." In Manchester the health visitors employed by the Ladies' Health Society perform this useful function.

LITERARY INTELLIGENCE.—Messrs. Harrison and Sons, 59, Pall-mall, S.W., will shortly reissue Banting's well-known work under the title of "The Rational Cure for Corpulency." The book has been revised and brought up to date.—In April the fourth edition of "The Operations of Surgery" will be published. This new edition has been subjected to a thorough revision at the hands of Mr. W. H. A. Jacobson and Mr. F. J. Steward, surgeon and assistant surgeon respectively to Guy's Hospital. The work will be found to contain 1524 pages in royal 8vo size in place of 1352 pages in demy 8vo, while there will now be 152 additional illustrations, bringing up the number to 550. To meet the convenience of the reader it has been decided to issue the book in two volumes. Messrs. J. and A. Churchill are the publishers.

ROYAL DENTAL HOSPITAL OF LONDON.—On March 13th the annual general meeting of the governors of this hospital was held at the new hospital in Leicester-square, the chairman of the managing committee, Mr. John Hampton Hale, a vice-president of the institution, being in the chair. The report of the committee opened with an appreciation of the great honour conferred on the hospital by His Majesty the King in becoming its patron and by commanding that it should in future be known as the "Royal Dental Hospital," an honour which, the committee felt, would go far to emphasise the worthiness of the objects of the charity. The new buildings were now as complete in every detail as could be suggested by modern science, and they had during the past nine months been open for the reception of patients. During the year now closed 70,040 cases had been treated, an increase of 864 over the previous year and 50,785 more than the number treated in 1874 (the first year of the hospital's existence). Though the committee was gratified to record a small increase in the income, yet it was far from sufficient for the needs of the institution and an earnest appeal was made for increased help to meet the payments for extinguishing the debt and the additional expenses entailed by the extra service and the higher rates and taxes, &c., due to the enlarged buildings and the more efficient administration. A vote of thanks to the Chairman, proposed by Mr. Morton Smale, the dean of the school, closed the proceedings.

THE QUEEN'S HOSPITAL, BIRMINGHAM.—This hospital has been enlarged recently at a cost of £40,000. The annual report states that provision has been made for an increase in the number of beds to 132 for the reception of accidents and urgent medical, surgical, ophthalmic, and obstetric cases, an addition which has considerably increased the expenditure of the hospital. The in-patients treated last year amounted to 2169 and the out-patients to 288,895. The yearly expenditure is over £10,000, the whole of which sum, with the exception of about £1000 received from investments, is dependent upon voluntary offerings and annual subscriptions. The report of the Queen's Hospital Aid Society for 1901 shows that the work of the charity has gone on increasing, and it fills a useful place in assisting the patients of the hospital. During the past 12 months 57 patients have been sent to Blackwell; six to the Home of Rest, Sutton; five to Sister Dora Home, Milford; and nine to the Stratford-on-Avon Nursing Home. Besides these, between 30 and 40 children have been sent from the wards to Moseley Hall and

two to Mrs. Evans's Home at Solihull. In some cases railway fares have been paid to enable patients to go into the country, or towards their expenses in boarding at farm houses. Surgical appliances have been supplied and in some instances patients have been relieved at their own homes for many consecutive weeks with milk, groceries, coal, or meat. During the past year the patients and their friends have contributed £7 15s. 2d. towards expenses.

THE LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—The report of the Liverpool School of Tropical Medicine for 1901, being the third year of the existence of the school, shows that steady progress has been made in the work during the past year. The hospital report states that four nurses were trained in 1901 at the expense of the school in the special tropical ward of the Royal Southern Hospital. Three of these nurses were sent by the Colonial Nursing Association of London. In connexion with the hospital a special department for out-patients suffering from tropical diseases was opened in October last which will be of great value to the school. During the year 131 cases were treated. Financial support has been freely forthcoming from those interested in the work of the school, but its operations entail a very large annual expenditure and as the school is not endowed it is to be hoped that liberal support will continue to be given.

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.—Under the chairmanship of their President, Dr. J. Macintyre of Glasgow, the members of the British Laryngological, Rhinological, and Otological Association held their annual dinner on March 14th at the Café Royal, Regent-street, London. Dr. C. O. Hawthorne proposed the toast of "The Association," and said that in the wide field of medicine general practitioners were debtors to the association for distinct contributions to their knowledge and their capacity to deal with suffering humanity. The President proposed the toast of "The Guests," which was responded to by Sir William Dunn, M.P., and Mr. Wilhelm Ganz. Dr. R. H. Woods of Dublin assisted in the entertainment of the guests by a humorous recitation and Dr. R. A. D. Daniel contributed some humorous songs. The music provided by Mr. Wilhelm Ganz, with the assistance of Sénor Guetary and Mr. Mervyn Dene, was highly appreciated.

ROYAL INSTITUTION.—The following are the lecture arrangements at the Royal Institution after Easter:—Dr. Allan Macfadyen, three lectures on Recent Methods and Results in Biological Inquiry; Professor F. York Powell, three lectures on English Kings and Kingship; Professor Karl Pearson, three lectures on the Laws of Heredity, with Special Reference to Man (the Tyndall Lectures); Professor Dewar, three lectures on the Oxygen Group of Elements; Dr. A. Smith Woodward, three lectures on Recent Geological Discoveries; Mr. M. H. Spielmann, three lectures on Contemporary British Sculpture; Mr. W. H. Cummings, three lectures on British National Song (with musical illustrations); Professor Walter Raleigh, three lectures on Poets and Poetry; and Professor Brander Matthews, three lectures on the Development of the English Drama: (1) the Art of the Dramatist, (2) the Drama of the Middle Ages, and (3) the Drama under Elizabeth. The Friday evening meetings will commence on April 11th when Professor Dewar will deliver a discourse on Problems of the Atmosphere. Succeeding Friday evening discourses will be delivered by Sir John H. A. Macdonald, Dr. J. Mackenzie Davidson, Sir Robert Ball, Sir Benjamin Baker, Professor A. E. Tutton, and other gentlemen.—Magnetism in Transitu formed the subject of the Friday evening discourse delivered on March 14th by Professor Silvanus Thompson. The subject was illustrated not only by diagrams, models, and numerous experiments, but also by pictures projected by means of the animatograph, in which diagrams of lines in motion represented the formation, growth, and disappearance of magnetic lines of force. One of the experiments was of a remarkable nature. Faraday showed long ago that when an electric current was passed through a wire an induced current was created in a second wire parallel to, but insulated from, the first one. The currents in the two wires travelled in opposite directions. Professor Thompson found that the magnetic lines of force existing between the two wires could be twisted in space by passing one wire through one loop and the other wire through the other loop of a figure-of-8 made of thin iron rod. The primary and the induced currents then travelled in the same direction. A series of 20 such figures-of-8, each so made that the metal composing it did not touch at the point of crossing, was fixed edgeways on a board about two feet long, all of them separate and similarly situated; the straight primary wire passed through one row of loops and the secondary wire through the other row.

CHESTERFIELD HOSPITAL.—The annual meeting of the governors of, and subscribers to, the Chesterfield Hospital, was held on March 13th. The report stated that during the year 420 persons were admitted, being 10 less than in 1900. The total number treated was 462. Of the 42 patients in the hospital at the end of 1900, 33 were discharged cured, six were relieved, and three were discharged at their own request. Of those admitted in 1901, 315 were discharged cured, 19 were relieved, 38 died, and 48 remained under treatment. The average stay of each patient was 33·92 days, against 28·63 days in 1900. In the out-patient department 2076 persons received benefit, as compared with 1858. There were 1211 casualties dealt with. The total expenditure for the year, exclusive of extraordinary expenditure, was £3421 13s. 4d. This exceeds the amount of any previous year owing to the number of patients. The extraordinary expenditure amounted to £752, and was incurred in connexion with the sanitary and heating arrangements. The report having been adopted the chairman announced that a gift of £2240 had been received from the trustees of the Renishaw Park Colliery Explosion Fund.

FREEMASONRY.—*University of London Lodge, No. 2033.*—The usual spring meeting of this lodge was held at Freemasons' Hall on March 13th. In the absence of the Worshipful Master, Dr. Samuel Hague, the chair was occupied by Brother H. W. Kiallmark, P.G.D. Amongst those present were Dr. A. E. Sansom, Mr. R. A. Germaine, M.A. (Recorder of Lichfield), Mr. Beaumont Morice, LL.B. (Recorder of Hythe), Dr. A. W. Burrell, and Mr. F. E. Lemon, M.A., treasurer. The secretary of the Chère Reine Lodge was a guest. The Permanent Committee brought up a proposal whereby busy members might be enabled to keep their names on the books without being expected to attend the meetings so regularly as those desiring to go forward and to take up office in the usual way. As this lodge numbers amongst its members a considerable number of graduates whose engagements are numerous and increasing and who yet do not wish their connexion with the lodge to be severed, this amendment of by-laws, if adopted, is likely to prove useful. A general feeling was expressed that the lodge has now assumed such a degree of importance that a petition should be sent to the University asking that its periodical meetings should be noted on the agenda published in the *University Gazette*.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.—The annual general meeting of the above association was held on March 17th (St. Patrick's Day) at the Hotel Cecil, London, when the out-going President, Dr. William Alexander (Liverpool) resigned the chair to Sir Philip C. Smyly (Dublin). There was a very large attendance of members. A vote of condolence with the relatives of the late Sir William MacCormac, a foundation member and former president of the association, was passed. The members and their guests, to the number of 257, subsequently sat down to dinner under the chairmanship of Sir Philip Crampton Smyly, the guests of the evening being Lord Rathmore, Sir John Edge, and Dr. Brendan MacCarthy. Dr. Brendan MacCarthy was introduced to the President by Mr. P. J. Freyer and was presented with the Arnott Memorial Medal founded by Mr. David Arnott in memory of his father, the late Sir John Arnott. Dr. MacCarthy in the autumn of last year joined the late Mr. William Smyth in attending the typhus patients during the epidemic in the island of Arranmore on the coast of Western Donegal. The only boat that these two medical men could get to convey the sick from the island sank after they reached the main land because of its unseaworthiness. Dr. MacCarthy said that if it had not been for the tragic way in which Mr. Smyth died he did not think that anything would have been heard of the matter. "Our Defenders" was proposed by Dr. W. E. St. Lawrence Finny and was responded to by Inspector-General W. H. Lloyd, R.N., Brigade-Surgeon W. Ffolliott, and Surgeon-Major J. J. de Zouche Marshall, A.M.R. Dr. T. Gilbart Smith gave the toast of "Our Guests," to which Lord Rathmore replied in an eloquent speech in

which he referred in feeling terms to the late Sir William MacCormac and the late Sir Richard Quain. Sir John Edge also responded to the toast and Sir William Broadbent having proposed the toast of "Ourselves" was followed by the President whose short speech concluded the evening. The singing of Miss Kate Rooney was much admired and Surgeon-Major Marshall's songs were enthusiastically received.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Laundries and Factory Legislation.

THE Bill introduced into the House of Lords by the Earl of Lytton to bring laundries within the scope of certain of the provisions of our factory legislation is making substantial progress in that chamber. During the committee stage the Government proposed no amendments, but Lord Belper, speaking on their behalf, intimated that the Home Secretary was making inquiries into certain points and that as a result amendments might be moved by the Government when the Bill reached the House of Commons.

Midwives Bill.

Very few alterations of substance were made in the Midwives Bill during its passage through the Grand Committee on Law. The Bill remains a measure to protect the title of midwife and provides no penalty for women who may practise without having been certified. There is no change in the constitution of the proposed central Midwives Board but words have been inserted to secure that before the Privy Council approves of any rules framed by the Board it shall submit them to the General Medical Council and take into consideration any representations made by the latter body. By way of compromise on the question of an annual issue of certificates the promoters of the Bill agreed to the insertion of a provision which makes it necessary for a certified woman to give notice in the month of January of each year to the local supervising authority that she continues in practice in the area of the authority. Another change is that the maximum fee for certification has been raised from 10s. to one guinea, while in one of the early clauses words have been introduced saying that only certified midwives shall be entitled to recover professional fees in a court of law.

HOUSE OF COMMONS.

THURSDAY, MARCH 13TH.

The Conscientious Objector.

Mr. FORSTER asked the President of the Local Government Board if he would state the number of urban sanitary authorities in the United Kingdom from which he had received resolutions advocating the repeal of Clause 2 of the Vaccination Act of 1898 relating to the conscientious objector; and what steps, if any, he proposed to take to carry out the policy advocated by them.—Mr. LONG replied: I have received resolutions of this nature from 251 urban sanitary authorities. The Vaccination Act, 1898, will expire at the end of 1903 and the question of its renewal will have to be considered next year. In the meantime I do not propose to take any steps for the repeal of the section referred to.

Small-pox Epidemic at Dartford.

Sir WILLIAM HART DYKE asked the President of the Local Government Board whether he was aware that in the town of Dartford and surrounding villages and district the small-pox was spreading with great rapidity; whether he was aware that about 2000 workmen had been lately employed upon new buildings of the small-pox hospital near Dartford, and that the said workmen were lodging in Dartford and the neighbouring villages and causing thereby the spread of the disease in all directions; whether steps could be taken to secure accommodation for these workmen upon the spot where they worked and thus arrest the danger of contagion; and whether any and what communications had taken place between the Local Government Board and the Asylums Board on this subject.—Mr. LONG replied that he was aware that there had been numerous cases of small-pox in the localities referred to. It was a fact that about 2000 workmen were being employed upon new buildings at the small-pox hospital near Dartford. Some of these men were lodging in Dartford and the neighbouring villages, but a large proportion of them slept in huts built for them on the site. It was not expected that all would avail themselves of this accommodation, and if it were made compulsory for the men to live on the site it was probable that they would leave their work. It was most important that the buildings should be completed as soon as possible. He had been in communication with the managers of the Metropolitan Asylums District on this subject, and he was pressing upon them to use every effort to secure that the workmen were accommodated on the site as far as practicable. He might add that every facility for vaccination was afforded to the workmen and that as regards those employed nearest to buildings containing cases of small-pox they were some time since required to be vaccinated.

Sir WILLIAM HART DYKE asked the right hon. gentleman whether he was aware that a very large number of these workmen after their week's work at this hospital were in the habit of travelling to London by train and returning by train to their work on the following Monday morning; and whether in view of the great risk this caused, not only with regard to the railway carriages, he did not see the absolute necessity of securing the detention of these workmen and their accommodation on the spot.—Mr. LONG said that he quite agreed that this was a very serious matter indeed, but he had no power to secure the detention of these men on the spot and, indeed, it was impossible to provide for them on the spot. It was true that it was most important to prevent any risk of the spread of the disease outside the metropolitan area, but it was more important still that provision should be made as rapidly as possible for the reception of cases within the metropolitan area. If that was not done the risk of the spread of the disease would be even greater than it was at present. Every effort had been made to provide for these workmen on the spot and to secure their revaccination. If people in the district concerned would only take the precaution of being revaccinated the risk would be largely diminished.

Mr. BAYLEY asked whether the provision of another hospital ship would not lessen the risk.—Mr. LONG replied that it would not in the smallest degree. It would be impossible to provide another hospital ship in time to take the place of the building accommodation now being provided. The Metropolitan Asylums Board was trying to double its supply of beds by buildings now being erected.

FRIDAY, MARCH 14TH.

The Ventilation of the House.

Mr. WYLIE in the course of debate called attention to the imperfect ventilation and other sanitary arrangements of some parts of the House of Commons building and to the expediency of putting electric ventilating fans into every lobby, passage, room, and apartment where practicable, and suggested that a committee of experts should be appointed to inquire into the whole question of ventilation and sanitation of the building. The hon. member declared that the existing system of ventilation was antiquated and unsatisfactory.—Mr. AKERS-DOUGLAS, First Commissioner of Works, who has charge of the building, said that the present system of ventilation had been approved by various committees in recent years, but he was prepared to have another committee appointed, and he would consider whether it should be a committee of experts or a committee of Members of the House. Samples of the atmosphere, he said, had been taken and were now in process of analysis.

MONDAY, MARCH 17TH.

Enteric Fever in South Africa.

Sir WALTER FOSTER asked the Secretary of State for War whether he was aware that when Lord Roberts was in command in South Africa all cases of enteric fever among the troops as well as those occurring amongst civilians were notified to the health office at Pretoria, and that after the departure of Lord Roberts notification of cases amongst the soldiers was stopped; and what were the reasons that led to the cessation of the system of notification which was recognised as an essential part of sanitary administration?—Mr. BRODRICK said: This notification was carried out for a brief period but it was held that the notification of every case of enteric fever in a country where the disease is endemic was unnecessary and that intercommunication of any outbreak of infectious diseases between the health officer and the principal medical officer was sufficient.—Sir WALTER FOSTER asked the Secretary of State for War whether any special sanitary officers had been appointed to inquire into the origin and spread of enteric fever and other preventable diseases among the troops in South Africa, to inspect the localities in which such diseases were most prevalent, and to advise with regard to their prevention.—Mr. BRODRICK replied: Yes; special sanitary officers have been sent out to South Africa.

Water in Butter.

Mr. HANBURY, in reply to a question on this subject, said that he would draw up the new regulations as strictly as he could with a view to prevent the sale of milk-blended butter containing water above the standard fixed by him.

Cancer Research.

Mr. WEIR asked the First Lord of the Treasury, in view of the action taken by foreign Governments in the matter of research into the cause, cure, and prevention of cancer, was the Government now prepared to consider the advisability of the appointment of a commission for the purpose of determining how research respecting this disease could best be stimulated?—Mr. ARTHUR LEE asked the right hon. gentleman if he could now state whether the Government was prepared to extend financial assistance to the forthcoming inquiry into the causes and cure of cancer.—Mr. BALFOUR said: My view remains that this subject, important as it is, can best be dealt with by private, though not unorganised, enterprise. I am told that the Royal College of Physicians of London and the Royal College of Surgeons of England have appointed a joint committee to consider how an investigation into the possible cure of cancer can best be carried out, and I have received communications from the President of the Royal College of Physicians of London and from other quarters which led me to believe that their efforts will be successful and that the scientific staff which they have at their command and the liberality of the public will enable a really important scientific investigation into this subject to be undertaken and carried through. In these circumstances I think it would be unwise for the Government to intervene in a matter which, after all, Governments are not able to conduct with very great success from a scientific or public point of view.

MIDWIVES BILL.

PROCEEDINGS IN THE GRAND COMMITTEE.

The Grand Committee of the House of Commons on Law met again on March 14th, with Sir JAMES FERGUSSON in the chair, and completed the consideration of the Midwives Bill.

The fourth clause of the Bill as it came before the committee was in these terms—viz.: "On the passing of this Act the Lord President of the Council shall take steps to secure the formation of a Central Midwives Board, which shall consist of (1) four registered medical practitioners, one to be appointed by the Royal College of Physicians of London, one by the Royal College of Surgeons of England, one by the Society of Apothecaries, and one by the Incorporated Midwives Institute; (2) two persons (one of whom shall be a woman) to

be appointed for terms of *three years* by the Lord President of the Council; and (3) one person to be appointed for a term of *three years* by the Association of County Councils. After *two years* from the commencement of this Act the members appointed under subsection (1) shall retire, but shall be eligible for reappointment annually. Any vacancy occurring by resignation or death shall be filled up in the case of a member appointed under subsections (1) and (3) by the body which appointed him, and in the case of a member appointed under subsection (2) by the Lord President of the Council. The duties and powers of the Board shall be as follows: I. To frame rules (subject to the approval of the Privy Council after consultation with the General Medical Council) (*a*) regulating the issue of certificates and the conditions of admission to the roll of midwives; (*b*) regulating the course of training and the conduct of examinations; (*c*) regulating the admission to the roll of women already in practice as midwives at the passing of this Act; (*d*) regulating, supervising, and restricting within due limits the practice of midwives; (*e*) deciding the conditions under which midwives may be suspended from practice; and (*f*) defining the particulars required to be given in any notice under Section 10 of this Act. II. To appoint examiners. III. To decide upon the places where, and the times when, examinations shall be held. IV. To publish annually a roll of midwives who have been duly certified under this Act. V. To decide upon the removal from the roll of the name of any midwife for disobeying the rules and regulations from time to time laid down under this Act by the Central Midwives Board, or for other misconduct, and also to decide upon the restoration to the roll of the name of any midwife so removed. VI. To issue certificates; and generally to do any other act or duty which may be necessary for the due and proper carrying out of the provisions of this Act."

Sir FRANCIS POWELL moved to amend the first sentence of the clause by substituting "the General Medical Council" for "the Lord President of the Council." He pointed out that the General Medical Council appeared in this connexion in the Bill of 1900, and he argued that it was the fitter body to undertake the formation of the proposed Central Midwives Board.

Mr. HEYWOOD JOHNSTONE said that all that was required of the Lord President of the Council in this connexion was to secure the formation of the Board whose component elements were set out in the Bill. All his lordship would have to do would be to see that a few letters were written.

Mr. JESSE COLLINGS, Under Secretary of State for Home Affairs, after reminding the committee that the Privy Council was recommended by the Select Committee of 1895, submitted that the proposed work ought to be in the hands of a Government department and not in those of a private corporation or body, however eminent. The Central Midwives Board would practically have the power of levying taxation upon the local authorities, because the expenses of the Board so far as they were not provided for by the fees were to be levied upon the local authorities. And if they must have a Government department there could be no Government department more suitable than the Privy Council which already had charge of the administration of the Medical Acts.

Sir WALTER FOSTER said that it was a great pity that the committee were without a representative of the Privy Council, because nobody ever expressed a stronger opinion upon this point than the Lord President himself. In 1896, when the Lord President received a deputation of the promoters of the Bill, he said that the only form in which the measure would be acceptable would be if the Midwives Board were placed under the General Medical Council. He said that it was extremely desirable that before another Bill was introduced the promoters should come to some definite understanding with the medical profession as represented by the General Medical Council. The result of this statement was that when the Bill was brought in in 1900 the clause now under consideration read that the President of the General Medical Council should take steps to secure the formation of a Central Midwives Board.

Mr. HEYWOOD JOHNSTONE: The promoters of the Bill were invited to amend it in this direction.

Sir WALTER FOSTER said that he would like to hear some explanation on the point from the Privy Council itself. The General Medical Council was not a private body but a public body created by statute, working under the Privy Council and responsible to the Privy Council.

Mr. JESSE COLLINGS: The General Medical Council has no powers to tax local authorities.

Sir WALTER FOSTER asked why, if the General Medical Council had no powers to tax local authorities, should the proposed Central Midwives Board be entrusted with them? He thought that such powers would be much safer in the hands of the General Medical Council than in those of this Board. Not only so, but he thought that if this matter were entrusted to the General Medical Council it would contribute to the smooth working of the whole measure.

Mr. VICARY GIBBS spoke in support of the clause as it stood.

Sir JOHN BATTY TUKE said that as a member of the General Medical Council he spoke with some diffidence on this matter, but he could not help thinking that the powers proposed for this Board were powers which could only be exercised by a medical body. The education and examination of midwives involved such purely medical considerations that he could not understand how the Privy Council could undertake them. It would come to this—that the whole matter would be handed over to the medical adviser of the Privy Council, who would be the only person whose opinion would be taken.

Mr. JESSE COLLINGS said that it was not altogether a medical question, but in any case the fact that the Privy Council was over the General Medical Council in the matter of the Medical Acts would not place the Privy Council over the General Medical Council in regard to this Act. The promoters of the Bill had, he thought, gone as far as they possibly could when they gave the General Medical Council a statutory right to be consulted by the Privy Council.

Mr. COHEN, speaking with all respect for the General Medical Council, could not regard it as the proper body to see to the formation of the proposed Board.

Mr. LEES KNOWLES said that if the General Medical Council were accepted as the authority all Parliamentary control would be lost.

Mr. JOHN BURNS considered it most important that Members of the House of Commons should be able to discuss the action of the proposed Board in Committee of Supply on the vote for the salary of the Lord President of the Privy Council.

The amendment of Sir Francis Powell was negatived without a division.

Mr. ROBERT AMBROSE moved an amendment to the effect that the Board should consist of "seven registered medical practitioners nominated by the General Medical Council. After two years from the passing of this Act one-half of the six members of the Board selected by the General Medical Council shall retire, but shall be eligible for re-election, and thereafter one half of such members of the Board shall retire annually in such manner that each of such members shall serve a term of two years before retiring, and members so retiring shall be eligible for re-election. In the event of the death or resignation of a member of the Board the successor elected or appointed shall hold office for the remaining period for which the deceased or resigned member was elected, and must be qualified equally with such deceased or resigned member to hold office as a member of the Board, and shall, on retiring, be eligible for re-election. No member of the Board shall act as teacher, instructor or examiner of midwives, and no member of the Board shall take any part in any inquiry respecting the conduct of any midwife to whom he had acted as teacher or instructor."

Mr. HEYWOOD JOHNSTONE said that the committee had just decided that the General Medical Council should not have the duty and responsibility of forming the Board and now the committee was asked to say that the President of the Privy Council should have his hands tied and have a Board ready made for him on the nomination of the General Medical Council. The substantial point, however, was whether this Central Midwives Board should be composed entirely of medical men or whether there should be laymen on it. As the Bill stood there must be a majority of registered medical practitioners on the Board. Of the seven members four must be registered medical practitioners and there was nothing to say that the other three might not be registered medical practitioners.

Mr. T. P. O'CONNOR said he did not think that the Board should be entirely a medical board. There might be taxation and if there was there must be representation and therefore he approved of the representation of the county councils. At the same time he thought the medical element should predominate.

Sir WALTER FOSTER agreed that four registered medical practitioners were enough, but he thought that there should be more ladies on the Board than was proposed.

After some further discussion Mr. AMBROSE agreed to withdraw his amendment.

Mr. T. P. O'CONNOR then moved to delete from the clause the references to the Royal College of Physicians of London, the Royal College of Surgeons of England, the Society of Apothecaries, and the Incorporated Midwives Institute, and to make the clause read, "Four registered medical practitioners to be nominated by the General Medical Council, each of whom shall be holding the appointment of teacher of midwifery at a recognised medical school in England, or who shall have previously held such an appointment." The General Medical Council he said, was representative of the whole medical profession, and was, in his opinion, entitled to this nomination.

Mr. HEYWOOD JOHNSTONE said that the real objection here was to the Incorporated Midwives Institute. He thought that the committee would thoroughly realise that a Board of this sort ought to have upon it some representative of the governed as well as the governors; that there ought to be some person upon it able to speak for and represent those who were to be put under the authority of the Board and subject to the rules framed by it. That was of itself a sufficient reason for including the Incorporated Midwives Institute. He regretted to say that during the second-reading debate he made an erroneous statement with reference to the institute. It was not incorporated by royal charter, but was incorporated under the Companies Act by special licence from the Board of Trade as a limited company not carrying on business for the purposes of profit and therefore entitled to call itself "incorporated" without the addition of "Limited" to its name. It was originally founded in 1881 and incorporated in 1889, the objects of the body as stated in the memorandum of incorporation being to raise the efficiency and to improve the status of midwives, to petition Parliament for their recognition, and to provide for the examination and the granting of certificates of qualification to midwives. The institute was the only representative body of midwives in the whole kingdom, and he submitted that it was well entitled to have the appointment of one of the registered medical practitioners to the Central Midwives Board.

Sir WALTER FOSTER said that his hon. friend was not quite fair in saying that the inwardness of this amendment was to strike a blow at the Incorporated Midwives Institute. That was not the motive in his mind or in the mind of the mover of the amendment. The medical profession in looking over this Bill were very anxious that this clause should be modified in the direction of giving the ordinary medical practitioner more control over the constitution of this Board. With regard to the two Royal Colleges it had been suggested to him that if they were to be left in the clause the election should be in the hands of the Members of the Colleges. Each of these bodies was at present governed by a comparatively small Council—a Council which was practically self-elected and therefore it did not command the confidence of the whole body of the Members. Now the General Medical Council was representative more or less of the whole profession—not so representative as it might be, but it had certain Direct Representatives who were elected by the whole body of the registered practitioners. Therefore, he thought that the right thing would be to give the appointment of these four practitioners, or three of them at any rate, to the General Medical Council. He did not want to bring the Incorporated Midwives Institute into the question at all and he would exclude it, and say that the General Medical Council should appoint three out of the four medical practitioners, one of the three to be a woman.

Mr. LAWRENCE said that he was satisfied about the Incorporated Midwives Institute, but he would like to hear something about the other three bodies, and especially the Apothecaries' Society.

Mr. GEORGE HARWOOD spoke in favour of the recognition in this connexion of the General Medical Council.

Mr. O'CONNOR disclaimed the idea of his amendment being directed against the Incorporated Midwives Institute. If he had his choice between the institute and the Apothecaries' Society he would give all his support to the former body, because he recognised the force of the statement that it represented the governed body.

The CHAIRMAN then put the question that the words "one to be appointed by the Royal College of Physicians of London" stand part of the clause.

This question was answered in the affirmative by a majority of 24 against 7 votes.

Mr. T. P. O'CONNOR then said he would be prepared to move the omission of the name of the Apothecaries' Society and the substitution of the General Medical Council if he thought the latter body would accept the duty of appointing one of the four registered medical practitioners.

Sir JOHN BATTY TUKE: They would not accept it.

Mr. O'CONNOR said that in these circumstances he would move to delete the name of the Apothecaries' Society in order to substitute that of the Royal British Nurses' Association. This body, he said, was the most representative body of the women engaged in nursing in this country.

Mr. HEYWOOD JOHNSTONE asked whether the hon. Member could refer to any reference to midwives in the charter of the Royal British Nurses' Association.

Mr. O'CONNOR said that he knew that a very considerable number of the nurses of the association were trained in midwifery and that the association had a list of members who had obtained certificates qualifying them to act as midwives.

Mr. SCHWANN said that out of 2800 nurses who were members of the association 254 had been trained as midwives.

Mr. O CONNOR insisted on urging the claims of the association, the hostility to which he could not understand.

Mr. HEYWOOD JOHNSTONE assured the hon. Member that he had nothing to say against the association, which was, in his opinion, a very deserving body. As a matter of fact, however, midwifery was really no essential part of the training of the association. Moreover, the hon. Member had not shown that the association had any desire to be represented in this matter.

Mr. O'CONNOR: The president of the association is desirous that the body should be represented.

Mr. HEYWOOD JOHNSTONE said that the question had never been brought before the association as a whole. As for the Apothecaries' Society, its name had always appeared in these Bills and had never before been challenged.

Sir JOHN BATTY TUKE pointed out that the Apothecaries' Society was not a mere trading body or pharmaceutical society, but one of the largest qualifying bodies in the three kingdoms.

Mr. JOHN BURNS added that the Society had interested itself in the midwives question as long ago as 1813.

Sir WALTER FOSTER, speaking in support of the amendment, said he doubted whether the total membership of the Incorporated Midwives' Institute was more numerous than the nurses trained in midwifery on the list of the Royal British Nurses' Association.

Mr. SCHWANN explained that the institute had 700 members.

Mr. O'CONNOR thought that as the questions to be dealt with by the proposed Board would be largely questions of nursing the association should be represented in its constitution.

Sir MICHAEL FOSTER pointed out that the Bill dealt with midwives and not with nurses. There was a tale in the medical profession as to the difference between physicians and surgeons. The physicians always said that they were surgeons and something more. A midwife was a nurse and something more, and it was with regard to that something more that they were specially dealing in this Bill.

The question was then put that the words "one by the Society of Apothecaries" stand part of the clause, and it was answered in the affirmative by 23 votes against 5.

Mr. AMBROSE moved to delete the Incorporated Midwives Institute in order to insert the name of the Victoria University. He did so with the view of having the great manufacturing districts represented on the proposed Board.

Sir WALTER FOSTER agreed that the provinces should be represented in some way.

Mr. EMMOTT took the view that anything in the way of sectional representation of the universities would do more harm than good.

The amendment was rejected by 24 votes against 3.

Mr. GRIFFITH-BOSCAWEN, who had not been present during the previous debate, moved to give a representative to the Royal British Nurses' Association.

Mr. O'CONNOR intimated that he would vote for the amendment.

Mr. HEYWOOD JOHNSTONE asked the committee to reject it.

On a division the amendment was rejected by 19 votes against 4.

On the motion of Mr. HEYWOOD JOHNSTONE it was agreed to give the Board power to cancel as well as to issue certificates and to add at the end of the section these words—viz.: "Rules framed under this section shall be valid only if approved by the Privy Council, and the Privy Council before approving any such rules shall submit them to the General Medical Council and shall take into consideration any representations which that Council may make with respect thereto." In moving the addition of these words the hon. Member said that there must be a Government department in the background to give sanction to the rules, but he hoped the words carried out the intention of the promoters of the Bill—to recognise the position of the General Medical Council and to show due deference to it by giving it a place in the Act and providing that it should be consulted.

The words "subject to the approval of the Privy Council after consultation with the General Medical Council" were struck out of the clause.

In Clause 5, dealing with fees and expenses, Sir WALTER FOSTER moved to substitute one guinea for 10s. as the maximum fee to be charged to women on presenting themselves for certification. He did so, he said, with a view of lessening the burden likely to fall upon the rates. His calculation was that they would require at least £2000 a year to carry on the work connected with the qualifying of these women and he did not think one guinea too much for them to pay for their certificate.

Mr. JESSE COLLINGS pointed out that the sum mentioned in the Bill originally was one guinea and 10s. had been substituted at the instance of the Home Office, but he was quite willing to leave the matter to the decision of the committee.

Mr. HEYWOOD JOHNSTONE said that he was prepared to accept the amendment, remarking that if in experience one guinea was found to be too high a fee steps could be taken to reduce it.

The amendment was agreed to.

In Clause 10, dealing with notification of practice, it was agreed, on the motion of Mr. HEYWOOD JOHNSTONE, to insert words requiring the midwife to give notice to the local supervising authority in the month of January of every year during which she continues to practise within the area of the authority.

Mr. GRIFFITH-BOSCAWEN moved to insert a new clause to provide that "any woman certified under this Act who shall undertake the charge of a case of abnormality or disease shall be liable upon summary conviction to a fine not exceeding £10."

Mr. HEYWOOD JOHNSTONE said that no woman undertook the charge of these cases because nobody could tell beforehand when a case was going to be abnormal or normal. Moreover, the practice of these women would be limited and restricted within due limits by the Central Midwives Board; and if the Board could solve a question which had not yet been solved and say whether a case would be abnormal or not, no doubt it would do it. One of the main objects of the Bill was to have a person in attendance who would know when to send for a medical man.

Sir WALTER FOSTER said that while nobody could tell beforehand whether a case was going to be natural or abnormal it was of the greatest importance that the strongest possible incentive should be given to women in attendance to send for qualified assistance the moment anything went wrong.

Mr. JESSE COLLINGS said that this matter had been very carefully considered and he hoped the committee would not accept the proposed clause.

On a division it was rejected by 22 votes against 4.

This completed the consideration of the Bill, and accordingly the Bill as amended was ordered for report to the House of Commons.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

The Case for Vaccination. By E. Brown, M.R.C.S., L.R.C.P. Price 1s. net.

Acute Dilatation of the Stomach. By H. Campbell Thomson, M.D. Lond., M.R.C.P. Price 3s.

Dynamic Aspects of Nutrition and Heredity. By Frank Horridge. Price 5s. net.

BLACKWOOD, WILLIAM, AND SONS, Edinburgh and London.

Thomas Henry Huxley. By Edward Clodd. Price 2s. 6d.

CONSTABLE, ARCHIBALD, AND CO., Limited, 2, Whitehall-gardens, S.W.

From Cradle to School: A Book for Mothers. By Mrs. Ada S. Ballin, editor of "Baby: the Mother's Magazine," of "Womanhood," and of "Playtime." Price 3s. 6d.

DORNAN, WILLIAM J., Philadelphia.

Transactions of the American Gynecological Society. Volume 26. For the year 1901. Price not stated.

GREEN, WILLIAM, AND SONS, Edinburgh.

Manual of Antenatal Pathology and Hygiene. The Foetus. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S. Edin., Lecturer on Midwifery and Gynæcology, Medical College for Women, Edinburgh. Price not stated.

HIRSCHWALD, AUGUST, Under den Linden 68, Berlin, N.W.

Die Faeces des Menschen im normalen und krankhaften Zustande, mit besonderer Berücksichtigung der klinischen Untersuchungsmethoden. Von Professor Dr. Ad. Schmidt und Dr. J. Strasburger, Privat-docenten an der Universität Bonn. 3. Abschnitt. Chemische Untersuchung der Faeces. Price 6 marks.

KIMPTON, HENRY, 13, Furnival-street, Holborn, E.C.

A Treatise on the Acute, Infectious Exanthemata, including Variola, Rubeola, Scarlatina, Rubella, Varicella, and Vaccinia, with especial reference to Diagnosis and Treatment. By William Thomas Corlett, M.D., L.R.C.P. Lond. Price 18s. net.

The Treatment of Neurasthenia. By A. Proust, Professeur à la Faculté de Médecine de Paris, &c., and Gilbert Ballet, Professeur agrégé à la Faculté de Médecine de Paris, &c., translated by Peter Campbell Smith, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg. Price 5s. net.

LLOYD, EDWARD, Limited, Salisbury-square, W.C.

The Municipal Year-book of the United Kingdom for 1902. Edited by Robert Donald, editor of "The Municipal Journal" and "The London Manual." Price 3s. 6d.

LONGMANS, GREEN AND CO., 39, Paternoster-row, E.C.

Selected Essays and Addresses by Sir James Paget. Edited by Stephen Paget, F.R.C.S. Price 12s. 6d. net.

OPTICIAN AND PHOTOGRAPHIC TRADES REVIEW, 123, 124, 125, Fleet-street, E.C.

A Manual of the Diseases of the Eye and Refraction, including Treatment and Surgery. By George M. Gould, A.M., M.D., of Philadelphia, U.S.A., and Walter Pyle, A.M., M.D., of Philadelphia, U.S.A. Second edition, revised and enlarged. Price not stated.

Spectacles and Eyeglasses: Their Forms, Mounting, and Proper Adjustment. By R. J. Phillips, M.D., of Philadelphia, U.S.A. Second edition, revised. Price not stated.

SWAN SONNENSCHEIN AND CO., LIMITED, London. (E. P. DUTTON AND CO., New York).

Health, Speech, and Song: A Practical Guide to Voice-production. By Jutta Bell-Ranske. Price 4s. 6d. net.

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., Limited, London).

The Medical Annual: A Year-book of Treatment and Practitioners' Index. 1902. Price 7s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

ARMOUR, DONALD JOHN, B.A., M.B., M.R.C.P. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Belgrave Hospital for Children.

BAIGENT, W., M.D. Durh., has been re-appointed Medical Officer of Health for Northallerton.

BUCKLING, D. H., B.A. Syd. Univ., M.B., C.M. Edin., has been appointed Medical Officer to the Post-office at Huddersfield.

BRODRICK, CHARLES CUMBERLAND, L.R.C.P., L.R.C.S., L.M. Edin., has been appointed Medical Officer and Public Vaccinator for the Whitchurch District of the Tavistock (Devon) Union for three years.

CHEESEWRIGHT, J. F., L.R.C.P. Edin., M.R.C.S., has been re-appointed Medical Officer of Health to the Greasborough Urban District Council.

CRUISE, RICHARD, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to the Bristol Eye Hospital.

EVANS, J. JAMESON, M.B. Edin., F.R.C.S. Eng., has been appointed Ophthalmic Surgeon to the Birmingham Workhouse and the Marston-green Cottage Homes.

FINDLAY, G. B., M.B. Aberd., has been re-appointed Medical Officer of Health for Brailes.

FLETCHER, J. L., M.B., C.M. Edin., has been re-appointed Medical Officer of Health to the South Darley Urban District Council.

GAYLOR, E., L.R.C.P. Edin., L.F.P.S. Glasg., has been re-appointed Medical Officer for Alfreton Rural District.

GOODING, MATTHEW RICHARD, L.R.C.P. Lond., M.R.C.S., has been reappointed Medical Officer for the Barnstaple Port Sanitary Authority.

HISCHET, H. CAMPBELL, M.D. Glasg., D.P.H., has been appointed Medical Officer of Health for Bangkok, vice Dr. P. A. Nightingale, retired.

HOLMES, CHAS. J., M.B., B.S. Durh., has been appointed Junior Resident House Surgeon to the Provincial Hospital, Port Elizabeth, Cape Colony.

JUDSON, J. E., M.R.C.S. Eng., L.R.C.P. Lond., late Senior Resident Medical Officer of the Manchester Workhouse, Crumpsall, has been appointed House Surgeon to the District Infirmary, Ashton-under-Lyne.

KERSWILL, JOHN BEDFORD, M.R.C.P. Edin., M.R.C.S., has been appointed Medical Officer of Health by the St. Germans (Cornwall) District Council.

MEACHEN, G. NORMAN, M.B., B.S. Lond., M.R.C.P. Edin., has been appointed Honorary Dermatologist to the Tottenham Hospital, N.

MORSE, EDWARD, L.R.C.P., L.R.C.S. Edin., has been re-appointed Medical Officer of Health for Torrington (Devon).

MUDGE, ZACHARY BILLING, L.R.C.P., M.R.C.S., has been re-appointed Medical Officer of Health by the Phillack (Cornwall) Urban District Council.

NETTLE, WILLIAM, M.R.C.S., L.S.A., J.P., has been re-appointed Medical Officer of Health for Liskeard (Cornwall).

PALMER, A. M., M.R.C.S., L.R.C.P. Edin., has been re-appointed Medical Officer of Health for the Urban District of Whittington.

STARKIE, E. G. B., M.B., C.M. Edin., has been re-appointed Medical Officer of Health for Poulton-le-Fylde.

WILSON, W. CHEYNE, M.D., C.M. Edin., has been appointed Honorary Physician to the South Devon and East Cornwall Hospital, Plymouth.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BEDFORD COUNTY HOSPITAL.—Senior House Surgeon. Salary £100 a year, with apartments, board, and washing.

BRADFORD POOR-LAW UNION HOSPITAL AND WORKHOUSE.—First Resident Assistant Medical Officer, unmarried. Salary £125, with rations, apartments, and washing.

BRECON INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, fire, and gas.

BRENTFORD UNION INFIRMARY AND WORKHOUSE.—Assistant Medical Superintendent, unmarried. The person appointed will be required to devote his whole time to the service of the guardians. Salary £120 per annum, with apartments, rations, washing, &c.

BRIDGWATER INFIRMARY.—House Surgeon. Salary £80 a year, with board and residence.

BRIGHTON AND HOVE LYING-IN INSTITUTION AND HOSPITAL FOR WOMEN.—House Surgeon, unmarried. Salary £80 per annum, with apartments, board, gas, coals, and attendance.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Pathologist.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £120, with board, apartments, and laundress.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer. Salary £120, rising to £150, with board, apartments, &c.

DURHAM COUNTY HOSPITAL.—House Surgeon, also Assistant House Surgeon. Salary of Senior £100, Junior £85, with board and lodging in each case.

GREY'S HOSPITAL, Pietermaritzburg, Natal, South Africa.—Resident Medical Superintendent. Salary, £350 first year, £400 second year, with board, lodging, and washing.

HANLEY, STOKE, AND FENTON JOINT HOSPITAL BOARD.—Lady Resident Assistant Medical Officer. Salary £60 per annum, with board, residence, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium £25.

HOXTON HOUSE ASYLUM, London, N.—Resident Clinical Assistant. Salary £60 a year, with board, lodging, and washing.

LIVERPOOL DISPENSARIES.—Head Surgeon, unmarried. Salary £200 per annum, with board and apartments. Also two Assistant Surgeons, unmarried. Salary £100 per annum, with board and apartments.

NORFOLK AND NORWICH HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—House Physician for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

NOTTINGHAM GENERAL INFIRMARY—Assistant Resident Surgeon, unmarried. Salary £160 per annum, increasing by £10 every year, with apartments, attendance, light, and fuel.

PADDINGTON INFIRMARY.—Clinical Assistant; also Second Assistant to the Medical Superintendent. Both for six months. Honorarium of £36, with board, lodging, and washing.

PORTSMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £120 to £156 per annum, with board, lodging, &c.

ROYAL BERKSHIRE HOSPITAL.—House Surgeon. Also Assistant House Surgeon, both for six months. Salary £80 and £50 per annum respectively, with board, lodging, and washing.

ROYAL UNIVERSITY OF IRELAND.—Examiners in Surgery, salary £50; Midwifery, salary £35; Pathology, salary £25; and Ophthalmology, salary £20; in each case with travelling allowances.

SOUTHAMPTON INCORPORATION, NEW WORKHOUSE INFIRMARY, Shirley Warren.—Resident Assistant Medical Officer. Salary £100 per annum, with apartments, rations, washing, and attendance.

TEIGNMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £70 a year, with board, lodging, and washing.

TOTTENHAM HOSPITAL.—House Surgeon. Salary £50 per annum, with board, residence, and laundry.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, apartments, gas, firing, and attendance.

VICTORIA HOSPITAL, Folkestone.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

VICTORIA HOSPITAL FOR CHILDREN, Queen's-road, Chelsea, S.W. House Physician for six months. Honorarium of £25, with board and lodging.

Births, Marriages, and Deaths.

BIRTHS.

BOWLES.—On March 13th, the wife of Alfred Bowles, M.R.C.S., L.R.C.P. Lond., of a son.

GILLHARD.—On March 13th, at St. Margarets, Purley, the wife of R. Gillhard, M.R.C.S., L.R.C.P. Lond., of a son.

MARRIAGE.

HOLCROFT—RICHARDSON.—At St. Breock Church, Wadebridge, Cornwall, on the 12th inst., W. F. Lucius Austen Holcroft, M.B., B.Ch. Edin., son of the late T. W. Holcroft of Sevenoaks, Kent, to Ruth Seymour, eldest daughter of J. B. Richardson, Esq., M.D., of Trevanion, Wadebridge, and Greenfield, Flintshire.

DEATHS.

EATON.—On March 15th, at St. Bartolomeo, Speria, Italy, Colonel Robert Coleman Eaton, Royal Army Medical Corps, aged 60.

HETLEY.—On March 13th, at Norbury Lodge, Upper Norwood, Frederic Hetley, M.D. St. And., in his 81st year.

JOHNSTONE.—On March 16th, at Brighton, Athol Archibald Wood Johnstone, F.R.C.S., in his 82nd year.

PRESTON.—On March 16th, in London, William John Preston, M.D. St. And., aged 82 years.

THEOBALDS.—On March 7th, at Cliffansty, Weston-super-Mare, John Robert Theobalds, Surgeon-General, late I.M.S. Madras, aged 79.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

TRUTH AND AN EMINENT SURGEON'S FEE.

THE following paragraph appeared in *Truth* of March 13th and requires a few words of comment:—

> The desire to get all you can, and stick to it, is not, I imagine, confined to any one profession or trade. A gentleman who did not—luckily for him—happen to know any London doctor, recently wrote, on the advice of a pharmaceutical chemist, to an eminent London surgeon asking for an appointment for his wife. He stated at the same time that the lady was suffering from insomnia, kidney derangement, and swelling of the feet. The appointment was made, and the lady attended, but after a short consultation the surgeon said, as was to be expected, that the case was not one for him, but for a physician. For this opinion he charged three guineas. The husband then wrote explaining the circumstances under which he asked for the appointment, and that he was ignorant at the time that he was addressing a surgeon, not a physician. He pointed out that it must have been obvious from his first letter that the case was not one for a surgeon, he denied the right of the doctor to take a fee under such circumstances, and he demanded the return of the three guineas. His demand was certainly made in a peremptory rather than a conciliatory tone, but the answer was still more peremptory:—
>
> — Cavendish-square, W.,
> February 13, 1902.
>
> SIR,—My solicitor's name and address are —, —— Esq., —— street, E.C.
>
> I am yours faithfully,
> — ——.

We do not understand why it was lucky that the husband "did not happen to know any London doctor," as the trouble seems to have arisen precisely from his ignorance in that direction. Nor can we admit that it must have been obvious to the eminent London surgeon from the husband's first letter "that the case was not one for a surgeon," for nothing can ever be certainly deduced from a layman's letters. Who diagnosed kidney derangement? Presumably the pharmaceutical chemist. And obviously insomnia and swelled feet can each and both have a surgical cause. The eminent London surgeon was perfectly right to see the patient. If, as the story goes in *Truth*, after a short "consultation" (examination is probably meant) the eminent surgeon was able to say confidently that the case was not one which he could treat we do not think that he should have asked for, or retained, a fee. But if the valuable time of the eminent surgeon was much taken up in finding out that the case was a medical case—not a point that it would be as easy for an eminent surgeon as for a pharmaceutical chemist to decide—and certainly if there was any consultation, he ought to be paid for his trouble. If the husband had consulted his family medical man in the first instance he would not have made a mistake that has led to his wasting three guineas; but because he has not a family medical man and is so unfortunate as not "to know any London doctor," why should he waste an eminent surgeon's time with impunity? By the way, there are only four surgeons living in Cavendish-square, but perhaps "Cavendish Square" is a sort of generic address for an eminent surgeon.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—Could any of your readers inform me if there are any homes, either seaside or country, where a weak-minded boy could be taken care of and at the same time receive a little education? In this case the parents are not well off but could afford to pay a small amount a year.

I am, Sirs, yours faithfully,
E. CHAMBERS MUSPRATT.

27, Darlington-street, Wolverhampton.

THE "TRIUMPH" STOKER.

AGAIN and again have we urged that in the case of the furnaces of factories or of electric-light generating stations or of mammoth hotels there can be no excuse for the production of filthy black smoke. It is only deliberate negligence in regard to stoking which leads to the formation of smoke in these instances. Our attention in this connexion has been drawn to a new mechanical stoker known as the "Triumph" stoker which gives most satisfactory results, for not only is the production of smoke prevented, but, as is inevitable, an economy of fuel and a clear gain of heating efficiency result. The "stoker" secures the sprinkling of the coal over the fire at intervals in such a way that two successive charges never fall in the same place. In other words the fire is never choked by adding an excess of fuel and the furnace is thus cooled down as little as possible while air gains access to every particle of fuel. The apparatus works quite automatically and with little attention and we could detect no smoke issuing from the chimney on the occasion of more than one surprise visit which we paid to a factory where the "Triumph" stokers were at work. There can be little doubt that if such an appliance could be universally adopted the evil of fog would be greatly minimised. And there is no reason why it should not be so for the apparatus is quite simple and easily managed, while it leads to a great saving of fuel which would amply repay the manufacturer or others for the initial outlay incurred. The "Triumph" stoker is manufactured by Messrs. Ransomes and Rapier, engineers, of London and Ipswich.

"PUBLIC HEALTH IN ITALY."

WE have received a copy of a little paper published in Rome entitled "Public Health in Italy: Official Notes." Probably some of our readers have seen the paper already, which has for its laudable object "the patriotic intention to remove all the Calumnies which foreign newspapers propagate respecting the sanitary state of Italy." The programme of the paper is better than its English, judging by the specimen which has been sent to us. The sanitary office of the Commune of Rome, for example, states that:—

> "Last January we enjoyed a very good weather and it is well known that no infective disease passed through Rome. On such a purpose we may add that Rome is not a fruitful ground for infective diseases, so that in Rome it is very difficult to such disease to unfold themselves. As to what regards the *malaria* there is no need to spend too many words to state that during these months there is no *malaria* in Rome."

This particular number includes an article on Rome as a health resort by Mr. J. J. Eyre.

THE NASAL DOUCHE AS A PREVENTIVE.

To the Editors of THE LANCET.

SIRS,—Now that we are in the midst of an epidemic of small-pox I should like to call attention to the necessity for the proper sanitation of the nasal passages and would plead for a doctrine which I have preached to my patients for some years—viz., the thorough and regular washing out of the nose and naso-pharynx. We all know the condition of the inside of the nose, with its happy family of microbes, &c. I am sure that if the organ was properly cleansed daily with a slightly astringent douche, such as a weak solution of sea-salt, we should hear much less of diseased condition and it would be much less likely to afford a channel for infectious germs. The saline douche washes away the accumulation of dirt and acting also as a slight astringent keeps the mucous membrane healthy and renders it less likely to absorb poisonous germs. Children should be taught to use the nasal douche when they are taught to use the tooth-brush.

I am, Sirs, yours faithfully,
Devonshire-street, W., March 11th, 1902. W. R. H. STEWART.

THE DIAGNOSIS OF SYPHILIS.

To the Editors of THE LANCET.

SIRS,—May I beg for an answer to the following questions through the medium of THE LANCET:—(1) The possibility and reliability of the differential diagnosis of the hard and soft chancre by bacteriological methods; (2) the best method of demonstrating the bacillus of syphilis (Lustgarten) in films from hard chancre; (3) the bacillus of soft sore, how may it be demonstrated and distinguished from other organisms; and (4) literature on the above.

I am, Sirs, yours faithfully,
March 17th, 1902. BACTERIOLOGIST.

*** Our correspondent's questions are by no means easy to answer. Lustgarten's bacillus is only the most likely organism which has yet been described to prove the cause of syphilis. It is very difficult to stain even in a section of a hard sore, and we doubt whether any trustworthy result could be got by staining films from the living sore. Ducrey's bacillus of soft chancre has been cultivated, though with difficulty. The evidence that it really is the cause of soft sore is fairly good. A tolerably complete account of the subject with literature will be found in No. 6 of the "Referate" of the *Centralblatt für Bakteriologie* for this year. (This journal is now published in two parts, "Referate" and "Originale.") The article to which we refer is a "Zusammenfassendes Referat"—i.e., a complete account of the knowledge of the subject up to date.—ED. L.

CLIMATE AND CHRONIC PULMONARY TROUBLE.

To the Editors of THE LANCET.

SIRS,—Can any of your readers kindly tell me why with some persons where there is a chronic tendency to torpidity (from heart dilatation) of the lungs, tending to slight congestion of the lungs, a dry, cold air suits them and not a cold, damp air?

I am, Sirs, yours faithfully,
Bournemouth, March 18th, 1902. HENRY A. HAMMOND.

RECRUDESCENCE OF THE POCKS IN VACCINATION.

To the Editors of THE LANCET.

SIRS,—Cases of revaccination with recrudescence of the pocks appear to be fairly common but receive no comment in the literature. I have seen three cases lately in which from four to six weeks after the revaccination, the scabs having fallen off, a fresh pock has developed on one of the scars and after going through a normal or somewhat hurried cycle has scabbed over. What is the explanation? It is usually supposed, I believe, that fresh pocks cannot be produced after the areola

are formed in existing pocks—i.e., until after some years, when the immunity disappears. In these cases, however, it appears as if some re-infection must occur or as if some organism had lain dormant for many weeks and then become active. I should be glad if any of your readers could offer a better explanation.

I am, Sirs, yours faithfully,

S. HENNING BELFRAGE.

PROPOSED MEMORIAL TO THE LATE SURGEON-GENERAL W. NASH, A.M.S.

To the Editors of THE LANCET.

SIRS,—I beg to inclose a further list of subscribers to the memorial to Surgeon-General Nash, for favour of publication if you have space.

I am, Sirs, yours faithfully,

B. M. SKINNER, Major R.A.M.C.
(Secretary to the Fund).

18, Victoria-street, S.W., March 18th, 1902.

	£	s.	d.
Colonel W. F. Stevenson, C.B., R.A.M.C.	0	10	0
Colonel W. H. Charlton, R.A.M.C.	0	10	0
Colonel McLeod, I.M.S.	0	10	0
Professor Wright	0	10	0
Lieutenant-Colonel Webb...	0	10	0
Lieutenant-Colonel W. L. Chester, R.A.M.C.	0	10	0
Lieutenant-Colonel Dick	0	10	0
Major R. H. Firth, R.A.M.C....	0	10	0
Major W. H. Horrocks, R.A.M.C....	0	10	0
Major Leishmann	0	10	0
Captain P. H. Whiston, R.A.M.C....	0	10	0
Lieutenant E. B. Knox, R.A.M.C....	0	10	0
Captain and Quarter-Master Johnson	0	5	0
Captain and Quarter-Master Lackey	0	5	0
Messrs. Holt and Co. ...	1	1	0
Lieutenant-Colonel Clements	1	1	0
Brigade-Surgeon J. Anderson	1	1	0
Surgeon-General T. W. Fox, A.M.S. (retired) ...	1	1	0
Brigade-Surgeon Melville G. Jones, A.M.D. (retired)...	1	1	0
Colonel McNamara	1	0	0
Captain H. Cotton, R.A.M.C....	1	0	0
Announced in THE LANCET of March 15th	5	14	0
	£19	9	0

CONTRACT PRACTICE.

To the Editors of THE LANCET.

SIRS,—Will you kindly insert the following in the next issue of THE LANCET:—

The amalgamated clubs at Retford, Notts, are, we understand, about to advertise for a medical officer. It would be advisable for any gentleman, before entering into a contract with the above clubs, to correspond with any of the undersigned medical men already in practice at Retford.—We are Sirs, yours faithfully,

TREVOR J. PRITCHARD, M.B. Edin.
R. J. TRISTAN, L.R.C.P. Edin.
G. THOMSON, M.B., C.M. Edin.
W. E. CUTHBERTSON, L.R.C.P. Edin.
C. WESTBROOK, M.D. St. And.
J. M. THORNE, M.R.C.S. Eng.
P. E. BEARBLOCK, M.R.C.S. Eng.

Retford, March 17th, 1902.

THE R. B. ANDERSON FUND.

THE honorary secretary of this fund has forwarded to us the following communication, dated March 18th:—

Lord Stamford and his committee beg to state that this fund is now closed, and to return their sincere thanks to the Editors and Proprietors of THE LANCET and the medical press generally for the valuable space which they have from time to time placed at their disposal. They now take this last opportunity of thanking those who have so generously responded to the appeal. In all, the sum of £257 5*s.* 6*d.* has been sent out to Sir C. C. Knollys, K.C.M.G. Colonial Secretary of Trinidad, who has kindly consented, in conjunction with the Warden of Tobago, to dispose of this amount as far as possible for the permanent benefit of the late Mr. Anderson's widow and twin sons, and in due course to furnish an account of his expenditure for publication. Net amount published: £241 17*s.*; Further amounts have been received from Dr. P. Frank, £3 3*s.*; from Dr. B. G. M. Baskett, Mr. H. Cropley, Mr. F. G. Evans, Dr. R. Emmett, Dr. E. Elliott, Dr. Q. Priestly, Mr. G. B. Robathan, Mr. H. L. Smith, Mr. H Stear, Dr. J. Thomarson, and Dr. C. H. Taylor, £1 1*s.* each; from Dr. H. Sheldmerdine, Dr. J. O. Brookhouse, and an anonymous donor, 10*s.* 6*d.* each; from Dr. T. C. Beatty and Mr. G. C. Franklin, 10*s.* each; and from Dr. L. Lewis, 5*s.*, bringing up the total to £259 7*s.* 6*d.*, from which £2 2*s.* have been paid to the honorary secretary in respect of some of the out-of-pocket expenses, leaving a sum of £257 5*s.* 6*d.* which has been remitted, together with an additional sum of £1 from Mr. A. E. Prest Hughes (Straits Settlements) which was received after the auditing and certification of the accounts.

SYPHILIS WITHOUT PRIMARY SORE (?)

To the Editors of THE LANCET.

SIRS,—I have a case of secondary syphilis under my care. All the usual symptoms are present and it is yielding to the usual remedies. Some years ago the same patient was treated for similar symptoms by the late Mr. Berkeley Hill who had no doubt as to the nature of the case. But the peculiarity is that there is no evidence of chancre or any primary sore. My patient cannot remember any sore on any part of his body and it is difficult to see how such should be overlooked. I write to ask if any such cases have occurred in your experience or that of your readers.

I am, Sirs, yours faithfully,

March 19th, 1902. J. W. A.

MANUFACTURE OF OZONE.

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent "Inquirer" in THE LANCET of March 15th, p. 789, who desired to know where he could obtain an apparatus for the production of ozone, may I inform him that the Electric Ozone Syndicate of 5, New Union-street, Moorgate, supply such apparatus? I am, Sirs, yours faithfully,

R. V. WOOD HUNTER,
Technical Manager and Chemist to the Electric Ozone Syndicate, Limited.

March 19th, 1902.

A. A.—1. For convenience generally at 60° F. 2. Taking the specific gravity of water at its maximum density—namely, 4° C.—as unity, at 60° F., or 15·5° C., the specific gravity would be 0·9991. 3. Usually to water at 60° F., or 15·5° C. 4. The fluid must be measured and weighed under the same conditions of temperature at which unity is fixed but with known mixtures; tables of corrections at different temperatures can be consulted. 5. The question is not clear, for the examples given purporting to state the specific gravity of a mixture of alcohol and water are considerably higher than the specific gravity of pure water. The specific gravity of an original mixture cannot necessarily be deduced from the specific gravity of the same mixture to which a known volume of water has been added. Shrinkage should be made up by adding more water.

Mr. P. Dalgado.—There is no one volume, so far as we know, dealing with the subjects of renal disease and diabetes other than text-books of medicine. Our correspondent will perhaps find what he requires in monographs in vols. iii. and iv. of Allbutt's System of Medicine, also in Dr. R. W. Saundby's "Lectures on Bright's Disease" and "Lectures on Diabetes"; also in Mr. Henry Morris's "Surgical Diseases of the Kidney and Ureter."

Bella Vista must consult her usual medical attendant.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.) West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (26th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (27th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.), City Orthopædic (2.30 P.M.).

SATURDAY (29th).—Royal Free (9 A.M. and 2 P.M.), London (2 P.M.) Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (24th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Discussion on the Treatment of Puerperal Eclampsia (opened by Dr. G. E. Herman). Council Meeting Night.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M. Council. 8 P.M. Communications:—Mr. C. W. Glassington: A Composite Odontome.—Mr. E. B. Dowsett: Alveolar Abscess perforating the Palate.—Mr. A. Underwood: Two Cases in Practice.—Mr. E. Lloyd-Williams: Fatal Case of Alveolar Abscess.

TUESDAY (25th).—CHELSEA CLINICAL SOCIETY (Jenner Institute of Preventive Medicine, Chelsea-gardens, Grosvenor-road, S.W.).—8.30 P.M. Annual Clinical Debate:—Cancer, its Nature, Origin, and General Principles of Treatment. The following, among others, will take part in the discussion—Prof. Hewlett, Mr. D'Arcy Power, Dr. H. R. Gaylord (New York) (Communication on Cancer in Swine, with lantern slides), Prof. Adami (Montreal) (Communication), and Dr. J. F. Payne (who will deliver the closing address).

ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Mr. A. W. Mayo Robson: The Surgical Treatment of Obstruction in the Common Bile-duct by Concretions, with especial reference to the Operation of Choledochotomy as modified by the author (illustrated by 60 cases).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. T. Colcott Fox: Clinique. (Skin.)

TUESDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. C. T. Williams: Clinique. (Medical.)

WEDNESDAY (26th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Clarke: Clinique. (Surgical.)

THURSDAY (27th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson, jun.: Clinique. (Surgical.)

FRIDAY (28th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. StClair Thomson: Clinique. (Throat.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1901, which was completed with the issue of Dec. 28th, and the Title-page to the Volume, were given in THE LANCET of Jan 4th.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1901 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 20th, 1902.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Mar. 14	30·01	S.	...	98	57	42	44	45	Fine
,, 15	29·76	WNW	0·62	92	57	43	44	47	Cloudy
,, 16	30·05	S.W.	...	89	50	46	45	46	Cloudy
,, 17	30·21	S.W.	...	85	61	46	48	49	Overcast
,, 18	30·10	S.W.	...	66	62	47	46	49	Overcast
,, 19	29·93	S.W.	...	104	66	46	45	49	Cloudy
,, 20	29·39	S.W.	...	65	49	43	46	48	Stormy

During the week marked copies of the following newspapers have been received:—*Lancashire Daily Post, Barnet Press, Slam Observer, Dorset County Chronicle, Ipswich Times, Yorks Observer, Aberdeen Journal, Aberdeen Free Press (Weekly), Surrey Advertiser, Times of India, Morley Observer, City Press, South Wales Post, South Wales Daily News, Plymouth News, Irish Times, Banbury Guardian, Freeman's Journal (Dublin), Es County Chronicle, Glasgow Evening News, Glasgow Herald Southport Guardian, East London Observer, Bulawayo Journal, St. James's Gazette, Lancaster Post, Suffolk Chronicle, Standard, Manchester Courier, Newcastle Chronicle, Echo, Yorkshire Post, Belfast Newsletter, Nottingham Express, Cardiff Echo, Newcastle Leader, Darlington Ec'c, Star, Western Morning News, Cheltenham Examiner, &c.*

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An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

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